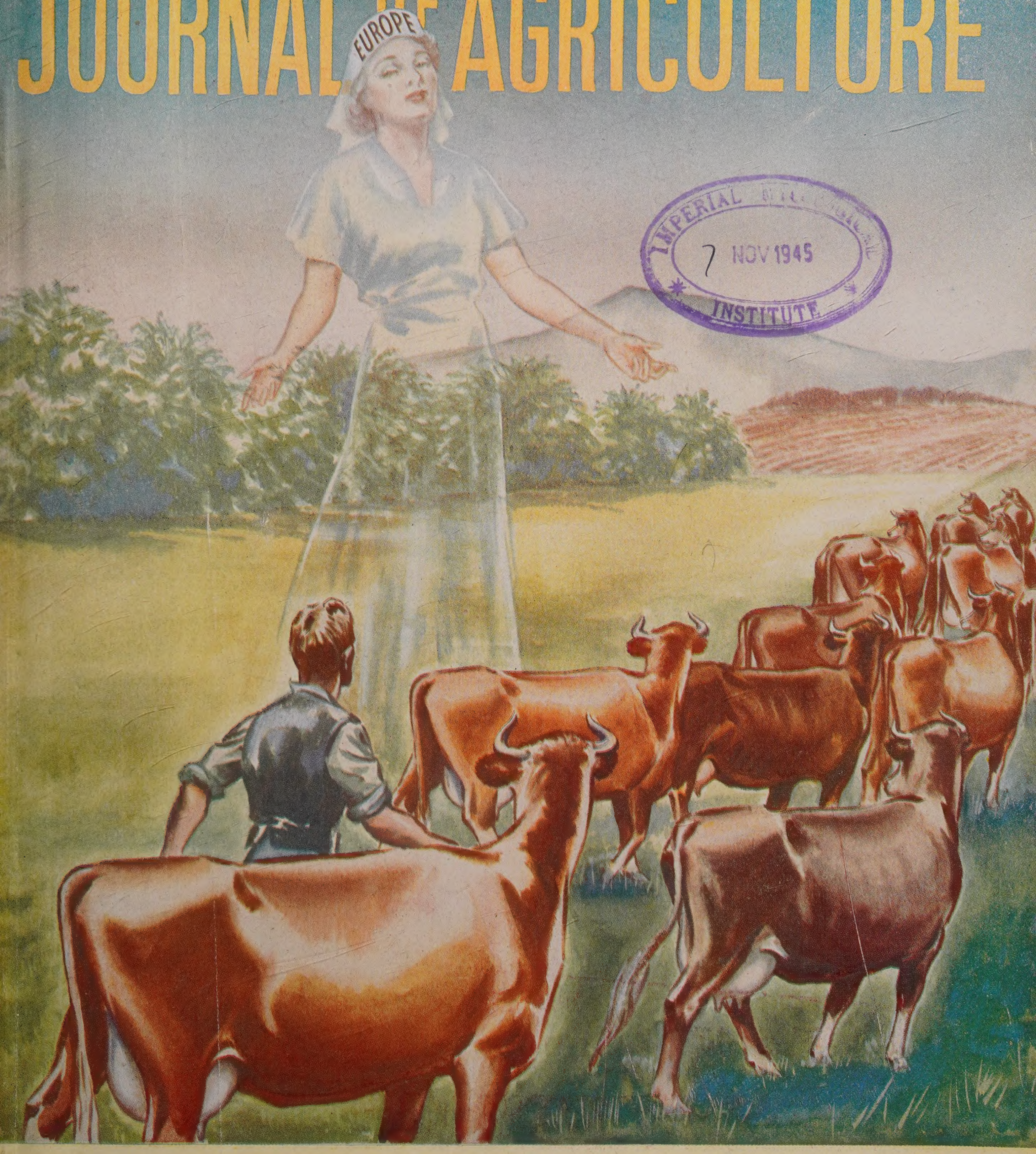
New Zealand

JOURNAL OF AGRICULTURE



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VOL. 71, No. 3. WELLINGTON, SEPTEMBER 15, 1945.

PUBLISHED BY DIRECTION OF
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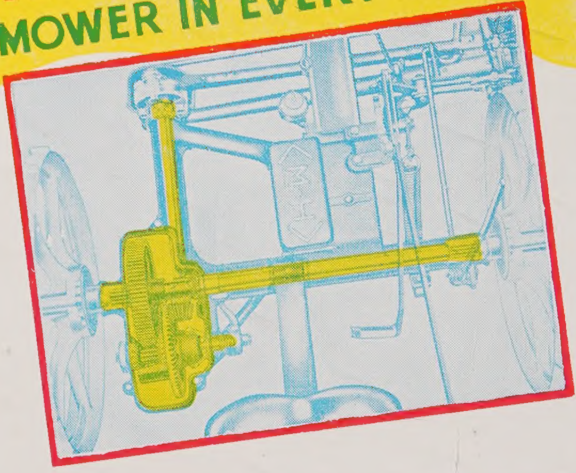
A BETTER MOWER IN EVERY WAY



Illustrating how the famous Massey-Harris Oil-Bath feature gives positive lubrication to the gears, axle and crankshaft. Oil seal washers prevent leakage.

Automotive type ball and roller bearing construction.

LIGHTER DRAFT.

Automotive design transmission. . . . High quality ball and roller bearings . . . Correct distribution of gear weight. . . . Balanced machine for reduced neck-weight.

SMOOTHER RUNNING.

The oil-bath feature of the Massey-Harris provides continuous thorough lubrication to the gears, axle and crankshaft bearings, keeping these parts free running and quiet at all times. Hairbreadth adjustment on the bevel gear takes up wear and keeps gears in correct working position making for smooth running at all times.

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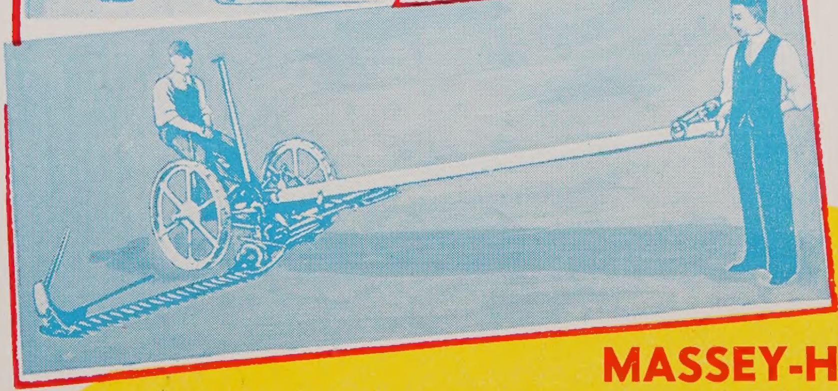
The famous Massey-Harris precision lined cutter bar, allowing free knife action without clogging, is responsible for the splendid cutting results obtained.

EASIER HANDLING.

The lift is easily adjusted to carry bar light, heavy or floating. Foot lever may be set at height most comfortable to operator. Comfortable double leaf spring seat for operator.



A correctly balanced mower. Note the lightness of the pole in working position.

LONGER LIFE.

Special features ensure long life and trouble-free service. Notable are the "NIKON" precision machine cut main gear, the straight-through one-piece axle, and the six-point clutch. Perhaps the feature that does most to prolong the life of the Massey-Harris No. 33 Mower is the oil-bath principle of lubrication illustrated above. Besides providing a smooth, quiet running machine this oil-bath also affords protection against wear and adds to the life of the machine.

PRECISION BUILT THROUGHOUT.

Before any Massey-Harris Mower leaves the factory it must pass many rigid tests to ensure satisfaction. Every gear is tested for trueness. The method of manufacturing results in precision alignment of all shafts and gears.

OTHER MODELS.

Other famous Massey-Harris Mowers include:

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No. 35 Power Take-off.
No. 6 Semi-mounted.
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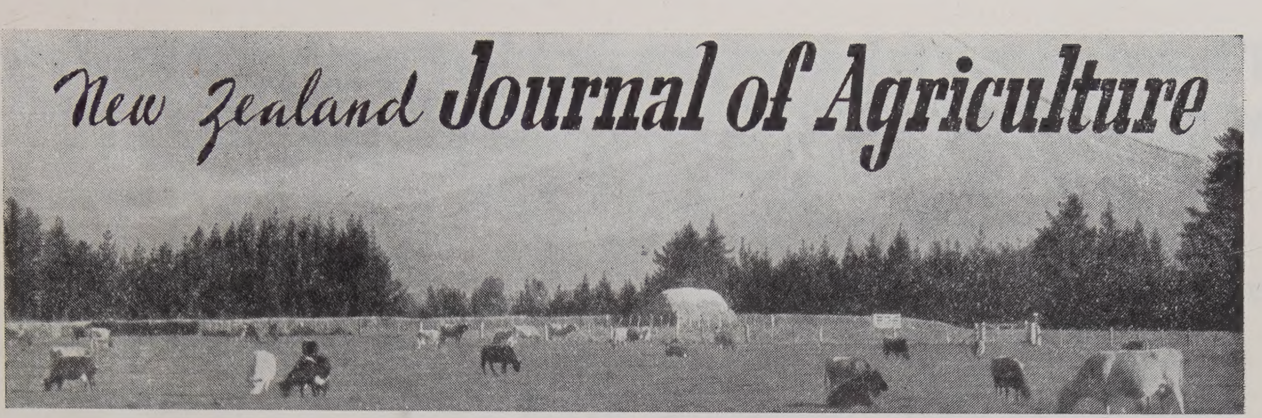
The "Service Arm" of the New Zealand Farm

New Zealand Journal of Agriculture



Vol. 71, No. 3. Published by Direction of Hon. B. Roberts, Minister of Agriculture. September 15, 1945.

Group Employment

Can It Solve Casual Labour Problem?

By
P. S. SYME,
Instructor in Agriculture, Warkworth.

EVER since the outbreak of war imposed new burdens on manpower there has been an insistent and unsatisfied demand for farm workers. This labour shortage is by no means new, and of certain aspects, at any rate, it may be said that wartime conditions have merely accentuated former difficulties. While there is a strong demand for permanent workers, many farmers on the other hand do not require full-time assistance, but would gladly avail themselves of outside help for some of those odd jobs which are apt to accumulate and which, with no assistance offering, must be left undone.

EXPERIENCE over a period of years seems to show that good casual labour is available to the farmer only in time of slump or when unemployment is rife in the cities. Indications suggest that a period of prosperity lies ahead, and it is fervently to be hoped that plentiful labour in the future will not be conditional on another trade depression.

That casual workers should be so scarce even in normal times is somewhat surprising in an agricultural country like New Zealand. Doubtless there are thousands of competent farm hands who would be only too pleased to leave the restless pavements of the towns for the tranquillity of the country, if guaranteed continuous work and a comfortable home. There lies the rub—how to guarantee these two prime essentials? The solution of this problem is in large part the solution of the labour problem on many New Zealand farms.

Essentially Communal Problem

Thinking along these lines, a group of farmers in the Warkworth district came to the conclusion that the remedy lay largely in their own hands. The problem was really a communal one, and could be solved co-operatively by the farmers themselves.

After careful consideration the Warkworth branch of the Farmers' Union evolved a scheme which seemed to offer a prospect of success. Investigations showed that 40 of the 76 members of the branch needed casual labour and would be prepared to guarantee this to a good man. More detailed inquiry showed that a group of 14 of these were, between them, willing to guarantee a full year's work, each paying one week's wages in advance to finance the scheme. With full employment assured, prospects at once became brighter. There remained only the question of accommodation to be satisfactorily settled, and the scheme would be ready for a practical test. Fortunately, a suitable house became available, and an ex-serviceman was engaged to serve a group of 14 farmers situated within a convenient radius. This worker has now been engaged continuously for a period of nine months, and the scheme has operated so satisfactorily that two more employment groups have now been formed and will shortly be in operation.

Basis of Scheme

As any solution of the labour problem in the Warkworth area might serve as a basis for a solution elsewhere in New Zealand, the following brief details may prove of general interest:—

As a commencement, each member signs a form specifying the number of weeks he is prepared to employ the worker on terms set out in the main agreement, which specifies as follows:—

I. Each member will provide the work promised in the form.

II. Each member will pay the union (i.e., the Warkworth branch of the Farmers' Union) in advance a sum equal to one week's wages. (This ensures sufficient capital to operate the scheme).

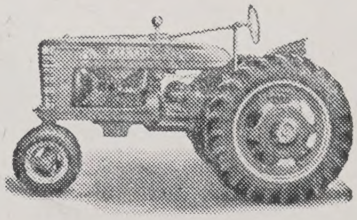
III. Covers prohibition of dangerous work unless by special agreement.

IV. Each member to pay the Farmers' Union branch 2/10½ per hour at fortnightly intervals as long as worker is employed by him. (This provides for an overhead cost of 3d. per hour for running the scheme and allows for paid holidays and wet time, etc. At the commencement 2½d. an hour was allowed, but this was found to be insufficient).

V. The union branch undertakes to pay the worker all monies due

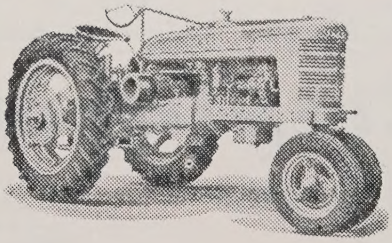
These rubber tyred Farmall and McCormick-Deering tractors arrive SHORTLY

Farmall M.



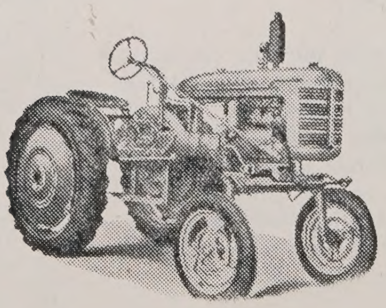
The powerful 3-4 furrow Farmall model that gives satisfactory and economical power under any field conditions.

Farmall H.



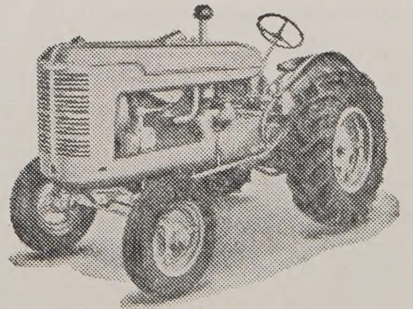
The Farmall model for the average farm. Pulls three furrows and like the M has four working speeds; and a high travelling speed of 15 m.p.h. when on rubber tyres.

Farmall AV.
(High Clearance Model)



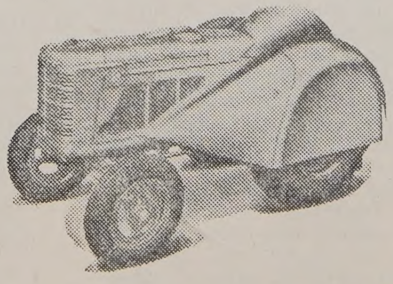
Designed for High Clearance.
The Farmall AV gives you all the power and features of the Farmall A plus a high clearance for working in high growing crops.

McCormick-Deering
W6.



Tractors, the W6 is a three-four furrow job with a five-speed transmission, and many other features that make for easy economical operation.

McCormick-Deering
O4. (Orchard Model)



The orchard model. An ideal tractor for the orchardist who wants easy economical power built to precision standards.

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WD9. (Diesel)

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An experienced group workman is competent to tackle any kind of farm work from scrub cutting, draining, or concreting to relieving in the milking shed.

to him and takes the onus of any claims off members.

VI. Deals with administration and keeping accounts by union branch.

VII. The union branch to pay wages due and to insure workman against all claims under the Workers' Compensation Act.

VIII. Terms of employment to be based on 40-hour average week as a minimum, but workman may work longer hours.

In turn, the workman also signs a workers' agreement as follows:—

I. Workman agrees to accept employment under the terms.

II. Worker will apply himself diligently to all work as directed by the union branch.

III. The worker shall render time sheets to the union branch and will be hired at the rate under agreement — Farm Workers' Award rate of 2/7½ per hour.

IV. Deals with the reporting of accidents and disputes to the union branch.

V. The workman will occupy the house provided and the union branch will deduct from his wages an amount for rent as agreed on. The workman will evacuate the house within seven days in the event of the termination of his employment.

VI. The union branch will pay punctually to the owner all rental deducted from the worker's wages and due to him as rent, and will produce receipts when asked by the worker.

VII. Deals with arbitration in the event of disputes.

Good Budgeting

That the preliminary estimate of the operational costs of the scheme was fairly close to the mark is shown by the experience of No. 1 group from its commencement on September 23, 1944, to June 30, 1945:—

	£	s.	d.	£	s.	d.
Cash received from group members for work ..				221	4	11
Wages paid to worker ..	215	19	0			
Office and administration costs	7	2	2			
Insurance	3	0	0			
Loss to date on group ..				4	16	3
	£226	1	2	£226	1	2

The loss of £4 16s. 3d. shows that the running expenses, paid holidays, wet time, etc., were slightly underestimated at 2½d. per hour. This figure has now been raised to 3d. per hour, and with the lowered overhead charges resulting from the formation of the new groups this should prove to be quite adequate.

Well Employed

That the farmers have employed the workman largely on work which might not otherwise have been performed is shown by an analysis of his time-sheet during the nine-months period under review:—

Class of work.	Hrs.	Class of work.	Hrs.
Scrub cutting ..	313	Pump repairs ..	18
Gorse cutting ..	163	Sewing stack covers	9
Blackberry cutting	42	Grubbing gorse ..	159
Clearing fence lines	218	Hay making ..	53
Knapping metal ..	9	Concreting ..	18
Fencing	36	Topdressing ..	69
Draining	398	Digging rushes ..	18
Total hours worked			1,523

Crucial Points

Experience obtained by those concerned in the running of the scheme to date suggests that the following points are of great importance:—

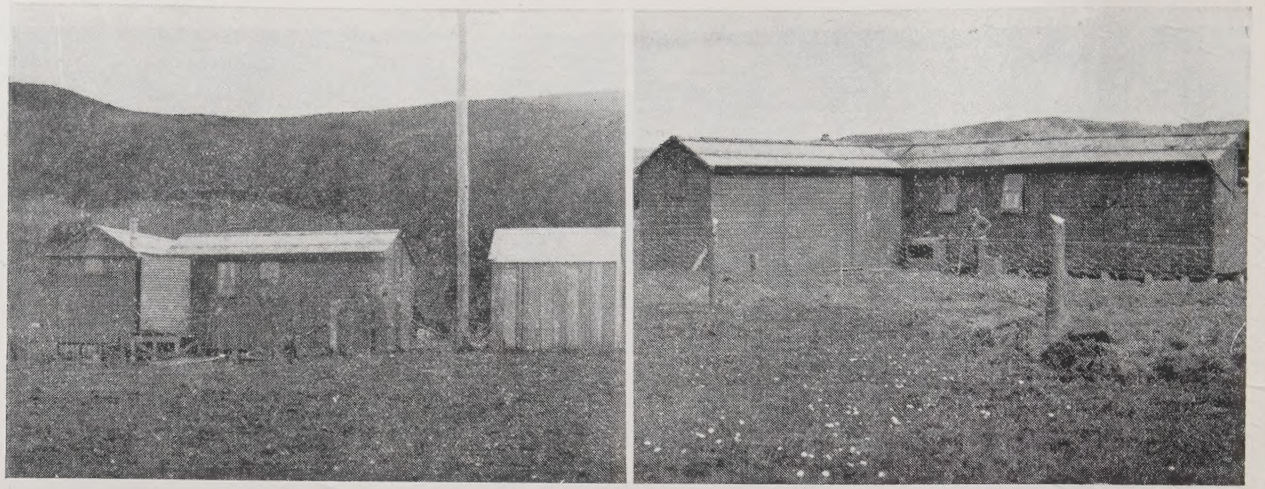
Much depends on getting the right man, and consideration must be given to his welfare.

Farmers should guarantee work for 12 months ahead. This permits of planning ahead and allows of the worker's time being utilised to the best advantage.

RAILWAY WAGONS ARE VITAL
Now, More Than Ever Before

With our Armed Forces to be cared for and our kinsfolk overseas in urgent need, New Zealand is producing food in the greatest quantities and fastest time possible. The supplies necessary to keep production going must be transported by the railways, and every available wagon is needed in doing the job. Saving wagon-time here may mean saving lives elsewhere. Shippers, we MUST get quicker turnround. Will you help?

Wagon Users, do Your Best to do Better



A pre-fabricated home such as the above can be made surprisingly comfortable. The interior walls are lined with a fibre-board and allow plenty of head room. The building, which is conveniently arranged, provides a floor space of approximately 60ft. by 8ft., and has electric power and water laid on. With a good-sized garden and a low rent, the workman is assured of reasonable comfort at a low cost.

Each group should have control over the selection and discipline of its worker.

A special employment committee in each district should be made responsible for the payment of wages, collecting accounts, and the settlement of disputes, etc.

Critics of the scheme will appreciate that much depends on the calibre of the man employed. He must above all be a capable and industrious worker, and one who can be depended on to work in smoothly with his different employers. For this reason very great care is taken to secure a good man, and, as an added precaution, he is interviewed and engaged collectively by the group concerned. Much attention is devoted to his previous record, and, if a local man, this should serve as a useful guide to his fitness for the job.

It is pointed out also that housing accommodation may prove an awkward hurdle. In this connection it may be possible to erect one of the special temporary pre-fabricated rural houses now available, or to build a State house suited for a rural worker. More perplexing, perhaps, is the situation which might be created by an unsatisfactory worker who refuses to vacate the house and thus nullifies the working of the scheme for the whole group. This eventuality, however, is possibly less likely to happen than might be supposed, as the collective weight of public opinion in a country district would tend to ostracise the offender and result in no alternative work being offered.

Fortunately no contretemps such as the above has yet been met, and, with increasing experience, any difficulties can no doubt be satisfactorily overcome. Recent investigation has shown that in the Rodney County alone there is scope for 15 employers groups. Operated on a nation-wide basis, it is evident that the successful utilisation of this or some other such scheme could do much to help in rehabilitation work, and could at the same time assist the hard-pressed farmer in increasing the supplies of food.

If left to solve itself, there always will be a labour problem. On the other hand, the Warkworth experience clearly shows that a joint communal effort offers an excellent prospect of a satisfactory solution. The choice lies between a policy of drift or one of organised endeavour. If it be true that Heaven helps those who help themselves, there is no doubt which is the better policy.

Measuring Stock Foods

USE of the following table will be found more satisfactory than the haphazard and often wasteful method of measuring stock foodstuffs by handfuls:—

1 bushel = 8 gals = 32 quarts.
1 kerosene tin (4 gals.) = half a bushel.
A box 4in. x 4in. x 4in.* = 1 quart.
A box 6in. x 6in. x 8in.* = 1 gallon.
A box 12in. x 12in. x 15½in.* = 1 bushel.
* Internal measurements.

A quart tin filled, but not packed would represent 1/32 of a bushel and the weight of the contents would be:—

	lb.	oz.		lb.	oz.
Wheat	1	14	Peas	1	14
Maize	1	12	Barley	1	6
Oats	1	4	Salt (common)	2	0
Bran		10	Pollard	0	10
Wheatmeal	1	8	Meatmeal	1	8

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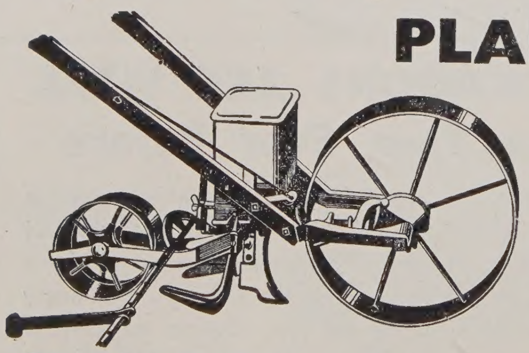

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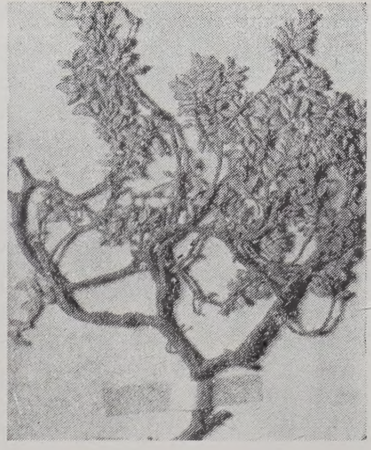
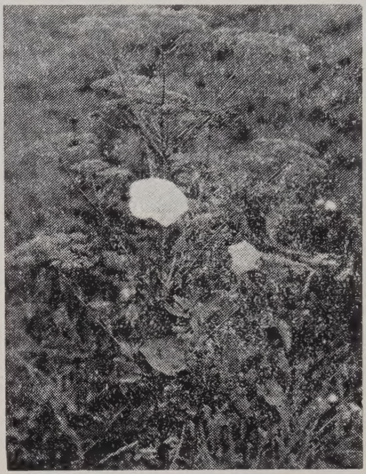
Plants Poisonous to Stock

By D. H. LeSOUEF, *B.V.Sc., Veterinarian, Wellington.*

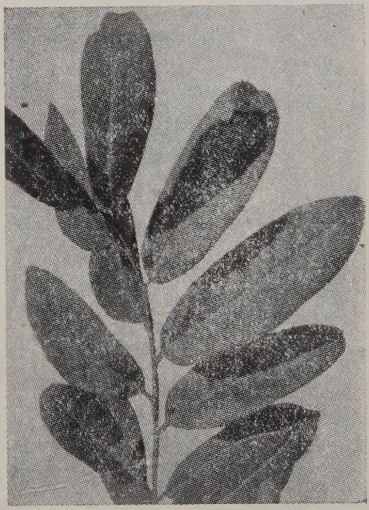
ANY general lessening of greenfeed during cold spells when growth is at a low ebb entails the possibility of stock being poisoned by the consumption of plants not normally eaten. In general animals that are likely to be affected are those more than normally hungry, such as travelling stock, those placed in unaccustomed fields with sparse herbage, or the odd horse or cow that is a forager with a tendency to break through fences or get into the garden. Trees and other plants that are known to have caused trouble or deaths are set out below, but symptoms cannot always be observed or treatment given, as in many cases the animals are found dead or "in extremis."



Strathmore weed *(Pimelea prostrata)*.



Hemlock *(Conium maculata)*, with convolvulus in flower twining up it.



Common laurel *(Prunus laurocerasus)*.

THERE may be other poisonous or suspected plants in New Zealand, but the list which follows covers the main ones.

Bracken Fern

Bracken fern (*Pteridium esculentum*) is a common fern throughout the country, and consists of a starchy underground stem or rhizome with rootlets attached and fronds springing up at intervals, being soft and tender at first but soon hardening off. Cattle are often put on to country after a burn when the fern is young, to help trample it underfoot and break down the growth, and it is at this stage that trouble usually occurs. Poisoning may take place in about a month on country which is growing little else, and the symptoms shown are emaciation and anaemia, indicated by the pallor of the mouth and eye membranes; then blood is passed and in the final stages coma occurs, with death supervening after 12 to 72 hours after onset of the symptoms. The poison seems to be cumulative and small quantities may be taken for some time before the symptoms appear; 6lb. per day has killed in about a month. (1).

Satisfactory treatment is not readily given, as the stock usually affected are young or run stock, but a purgative followed by a complete change to good pasture with supplementary food may save beasts in the early stages.

Strathmore Weed

Strathmore weed (*Pimelea prostrata*) is a common plant in the North Island, and belongs to the same family as the garden daphne, having wiry, straggling, much-branched stems, short leaves, and terminal clusters of whitish flowers. Horses are reported to have been poisoned by this plant, the symptoms in severe cases being narcotic effects or convulsions. The bark and berries especially are acrid and poisonous (1).

Hemlock

Hemlock (*Conium maculata*), sometimes called carrot fern, is a biennial plant having fern-like leaves of a dull green, blotched with brownish-purple, as are the hollow stems. The flowers occur as white umbels and may shoot up 5 or 6ft. in height. The plant has a strong foetid smell and contains a poison (conine) which is a narcotic alkaloid. Stock rarely take the plant, but have been known to do so when shut in a small enclosure in which the rank plants were growing. Symptoms noted have been sluggishness, difficulty in walking, and paralysis; coma and death follow. A heifer suffering from hemlock poisoning some years ago is known to have recovered after a purgative drench of Epsom salts and ginger in the early stage of the disorder.

Juniper

The juniper (*Juniperus sabina*) comes under the heading of garden clippings, as do the laurel (*Prunus*, several species), privet (*Ligustrum vulgare*), yew (*Taxus baccata*) and rhododendron. Particular care must be taken when cleaning up old-established gardens that stock are kept away from the rubbish heap until it is completely destroyed by burning. Valuable dairy cows have been lost by eating such clippings. Symptoms in cases of poisoning through eating the above-mentioned clippings have been rather similar. Constipation, slimy foetid faeces, staggering, and distress, and sometimes bloating have been evident. Death occurs within a few hours.

Karaka

Karaka (*Corynocarpus laevigata*), a handsome native tree with shiny dark-green leaves, is grown in gardens in many parts. The fruit is soft and yellow with a strong pleasant smell and a very hard woody centre containing a whitish seed. This seed has sometimes been eaten by dogs which have been chewing the stone, and its poisonous properties have caused

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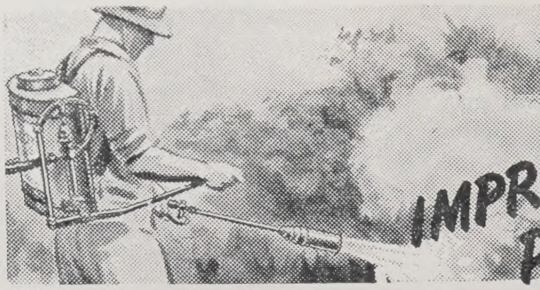
(1) B. C. Aston, Journal of Agriculture, Vol. XXVI.



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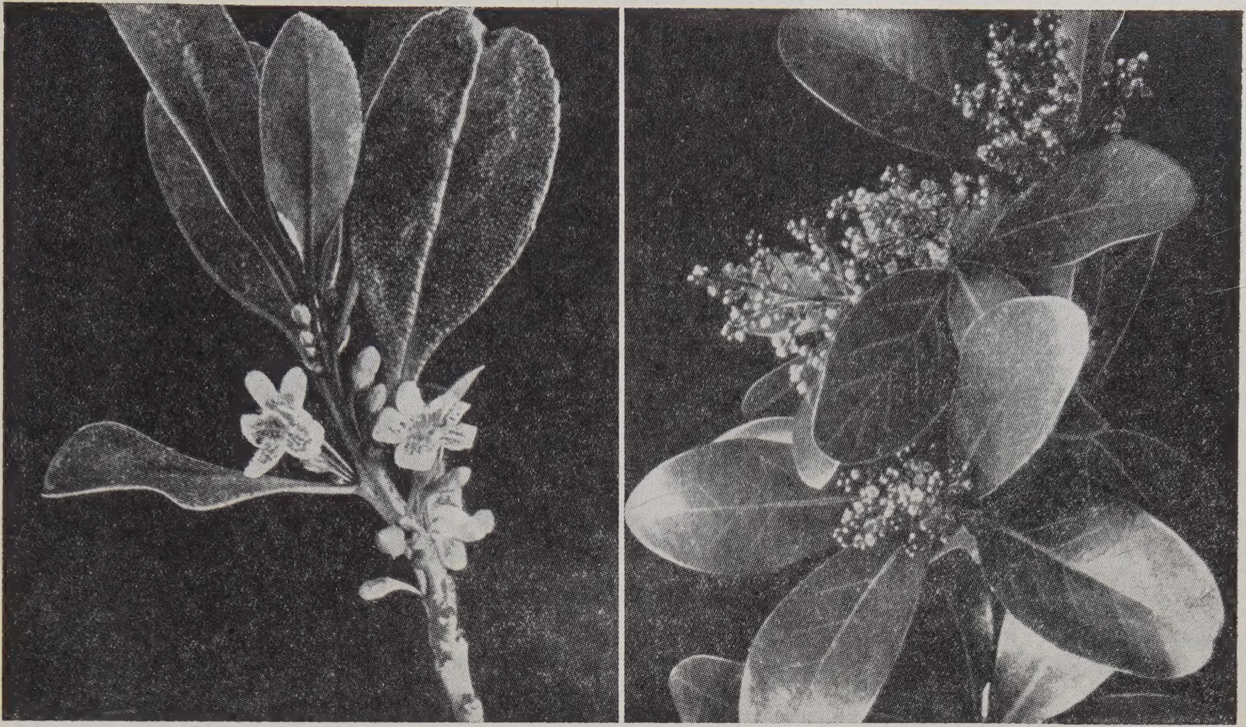

Left—Ngaio *(Myoporum laetum)*. Right—Karaka *(Corynocarpus laevigata)*.

sudden death. These properties are destroyed by heat and the cooked seeds were used by the Maoris for making a flour.

Macrocarpa

Abortion has been caused in cows after eating shoots of macrocarpa (*Cupressus macrocarpa*), as was reported in the "Journal" of October, 1943, by Messrs. Gilder and Alexander. All the animals affected were cows close to calving (about 8 months pregnant) and they had been placed in paddocks containing fallen limbs of this tree.

Ngaio

Ngaio (*Myoporum laetum*) is a native and common throughout New Zealand, chiefly by the sea coast, being hardy and quick growing. Cases of poisoning have been reported in cattle, sheep, and pigs that have eaten ngaio foliage. The writer has seen several cases where up to six cows on one property have been lost, the owner suspecting malicious poisoning by his neighbours. The symptoms noted in cattle were pain and distress followed by bloating and dullness; death occurred within less than a day in most cases, although some beasts lingered for a few days. Sheep and pigs have been poisoned with the leaves, but usually a whole tree or large branch that has been blown down has been the cause of the trouble with cattle. Feeding experiments have recently been carried out at the Animal Research Station, Wallaceville, by Drs. I. J. Cunningham and C. S. M. Hopkirk, and full details have been published (2). The Tasmanian variety of ngaio (*Myoporum serratus*) has also been proved poisonous to sheep. The writer has not been able to give treatment in time, nor have others reported any success, so that stock owners are advised to take precautions after a wind storm by seeing that no stock have access to broken ngaio branches.

Nightshade

The black nightshade (*Solanum nigrum*) is a very common weed of cultivated land and odd corners of domestic gardens. It has even been cultivated and used for jam making. It is often misnamed the deadly nightshade, which is a very poisonous member of the same family rarely, if ever, found in New Zealand. Poisoning by the black nightshade has been reported only in one or two instances, symptoms being stupefaction and staggering. Sheep penned in a small paddock with no other herbage in it have died through eating it. Stock eating sprouted potatoes (*Solanum tuberosum*) have shown similar symptoms, and horses have died when fed sprouted potatoes mixed with grass (3).

Ragwort

Ragwort (*Senecio jacobaea*) is a well-known weed and the bane of many a property owner's life. Its consumption by stock causes Winton disease. It is distinguished by its fern-like leaves and brilliant yellow flower heads, which in summer time may be seen covering large areas in some districts. Poisoning occurs in horses, cattle, and sheep, and symptoms may appear in a month and up to six months after the stock first graze on the plant. A falling away in condition, capricious appetite, and brain symptoms such as paddling with the feet and walking into things as though unconscious of the surroundings are noted, especially in horses. There may be constipation or diarrhoea, with evil-smelling faeces. Death may supervene in a few days or more after the first symptoms, and a post-mortem examination reveals a pale, hard, fibrous liver with inflammation and oedema of the bowel. These symptoms are shown in both horses and cattle and often appear after the animals have been moved off the ragwort country to good pastures. Sheep can be affected but are slow to show the symptoms and, as with cattle, they will start dying a short time after being moved off the ragwort. There is no successful treatment generally known once the symptoms have appeared, although success has been claimed in some cases. Poisoning may be caused by eating the plant in the young rosette stage, the flowering stage, or when the weed has been cut with the pasture and fed dry in the form of hay. Stock will not eat the growing plant if there is sufficient other feed about, hence eating usually takes place in the autumn and winter, though the symptoms do not show up until spring. Prevention by destroying the plant with sodium chlorate, pulling or cutting and burning is the best cure.

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(2) A. J. Healy, N.Z. Journal of Science and Technology, Vol. XXVI.

(3) W. A. Dickinson, Vet. Record., Vol. IX, No. 42.

Rangiora

Rangiora (*Brachyglottis repanda*), a well-known native shrub with large green leaves, having a soft white under surface and clusters of a tiny whitish flower, has caused poisoning at times, but apparently only when in flower (1). The honey gathered from it is also poisonous. Symptoms noted in horses and cattle are staggering, as though tipsy, and then lying down. Death occurs without a struggle. Recovery may take place after the first symptoms have appeared, and although no proved treatment is known, sharp exercise and a good purgative are to be recommended.

Buttercup

The celery-leafed variety of buttercup (*Ranunculus sceleratus*) is an annual found in damp pastures and ditches, and has a tap root with a stem up to a foot high, the stem and leaves being somewhat like those of celery. The leaves are bright green, three-lobed, and shiny, with flowers a quarter of an inch in diameter and yellow in colour. The plant is decidedly poisonous, causing vesicles by burning the mouth parts and stomach. Fortunately the acrid taste causes stock to avoid it in most cases, but some cattle will develop a craving for it and eat sufficient to cause death. The plant has caused losses in the Wellington and Nelson Provinces within recent years.

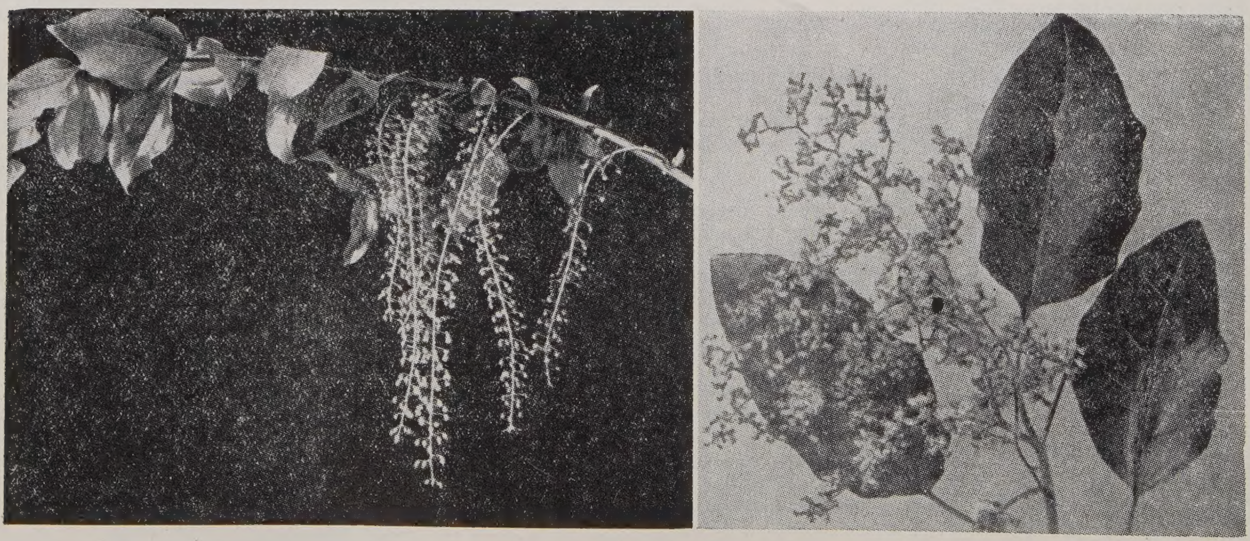
Ragwort *(Senecio jacobaea).*

Cape Tulip

The one-leafed cape tulip (*Homeria collina*) has recently been found in New Zealand (2) as a garden escape, although it has been known in South Africa and Australia for many years as a dangerous plant. It belongs to the same family as Watsonias, etc., and has a single leaf 1 to 2ft. long and ¼ to ½in. wide, and a single stem shorter than the leaf, bearing 2 to 4 clusters of flowers of from orange-scarlet to salmon pink in colour. The plant is very poisonous, and the symptoms are described by Clarke in Australia (1939) as intense gastro-intestinal irritation and bloating. Death usually occurs in 12 hours, though some cases linger a few days.

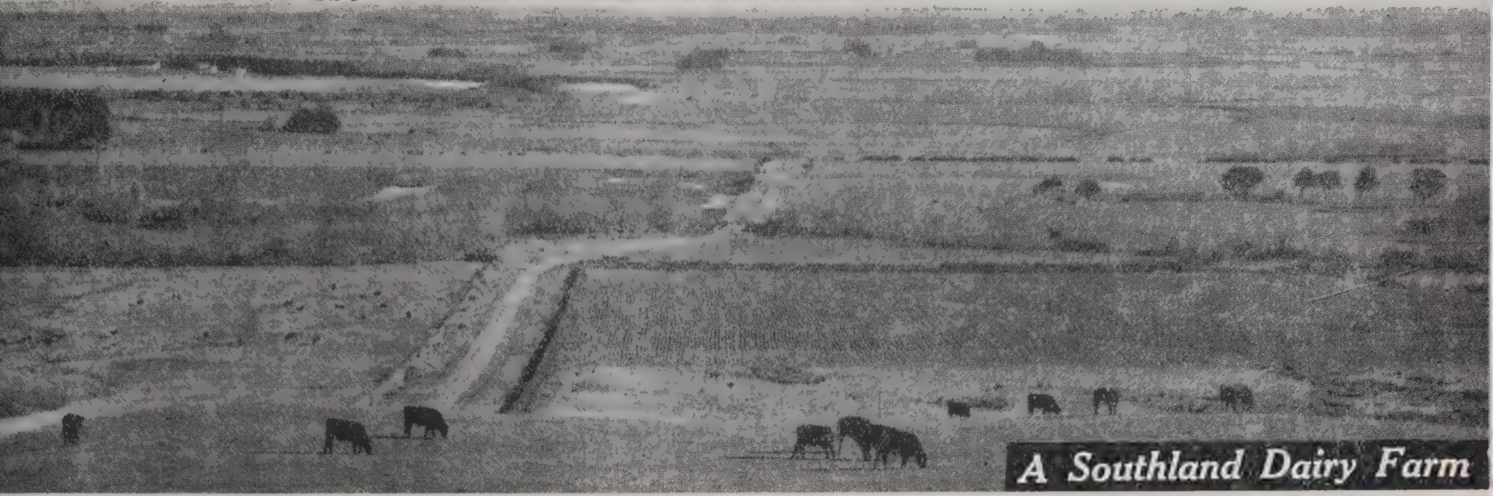
Tutu

Tutu (*Coriaria arborea*), found on the margins of forests and on rocky faces throughout New Zealand, has young shoots which are soft and fleshy and more likely to be eaten than the adult plant which forms a tree, with hard woody stems. This plant again is one that is eaten only when stock are very hungry, say after droving in the summer time in the back country. The onset of symptoms is rapid, with violent struggling and running followed by bloating. Treatment is of little avail, but bleeding by cutting the ear or tail is often resorted to with dubious success.



Left—Tutu *(Coriaria sarmentosa).* Right—Rangiora *(Brachyglottis repanda).*

STUDIES IN FARM MANAGEMENT


A Southland Dairy Farm

THE growing of a considerable acreage of supplementary fodder crop to supplement pasture production is a feature of dairy farming in Southland. Owing to seasonal conditions "all-grass" farming as practised in the main dairying districts of the North Island is out of the question. Another difference is that there are few straight-out dairy farms in Southland; the ewe flock and sometimes cash crops are features of the type of farming practised. In fact, as the article points out, the present trend is away from dairying.

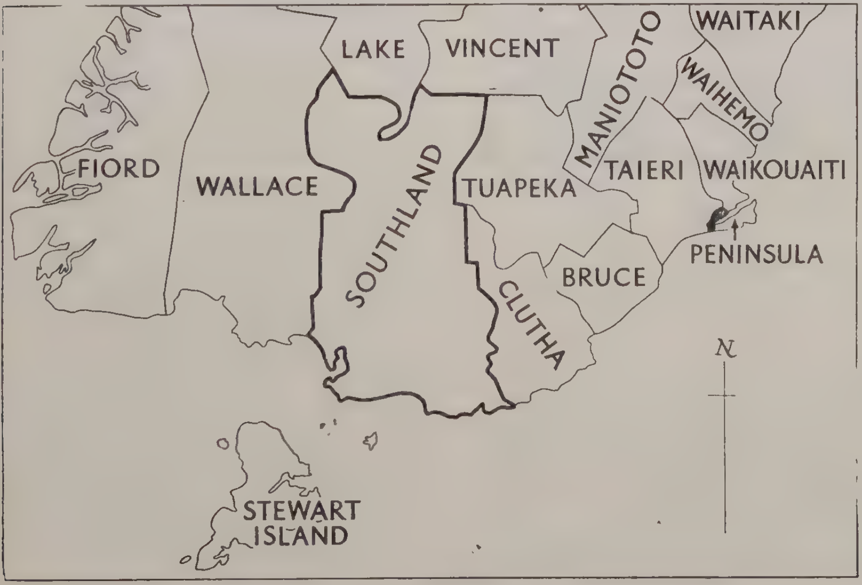
By
W. F. DICK,
Fields Instructor,
Invercargill.

IN the early days of its development Southland bore a reputation for dairy cows and mud. The adverse conditions were gradually improved, and today dairy farming anywhere in Southland is a much pleasanter occupation than it used to be. In spite, however, of the greatly-improved conditions, the dairying industry in Southland is declining. The industry reached its peak in the early years of the 1920-1930 decade, when the price of butterfat was at its peak. The declining importance of the industry, which first became noticeable over the closing years of that period, received a check during the first half of the following period, by reason of the economic conditions, which gave a temporary impetus to the industry, but since 1936 the trend away from dairying has become more rapid and denotes a definite change in farming policy. Table I shows the course of the industry in Southland over the past 18 years:—

TABLE I—DAIRY COWS IN MILK AND SHEEP SHORN, WALLACE AND SOUTHLAND COUNTIES (inclusive of boroughs).

Year.		Dairy Cows in milk at Jan. 31.	No. of Sheep shorn.
1923-24	..	75,718	1,247,785
1930-31	..	71,541	2,175,290
1935-36	..	73,462	2,134,623
1940-41	..	59,996	2,614,695
1941-42	..	60,754	2,635,288

Over this period the dairy cow population has declined by over 21 per cent., while sheep numbers have increased by over 111 per cent. Although, within more recent years, many new factors have arisen to hasten the change-over from dairy to sheep farming, undoubtedly the primary one was the long "dead" season during which supplementary feed must be provided, extending from May usually to the end of September and sometimes into October. In order to understand the reason for the rapid decline in the popularity of dairy farming since 1937 it is necessary to trace briefly the course of land development in the Southland Province.



Land Development

The land in Southland has been developed out of original bush, silver tussock, red tussock, swamp, and scrub-land, representing different types of soils and subsoils. Whatever the natural state of the land, however, the keystone of its development, after attention has been paid, where necessary, to the matter of drainage, has been the application of lime, followed by topdressing and building up the stock-carrying capacity. Southland land in its natural condition is very acid, having a pH value of about 4.0 to 4.5, and at least three tons of carbonate of lime per acre are necessary to correct the acidity of the soil and bring it up to somewhere around the neutral condition. Further applications at the rate of 4 to 5cwt. per acre per annum are required to counterbalance losses through leaching. On good farms ½ ton of carbonate may be applied to half the farm annually, or a third of the farm may receive a ton of carbonate annually, or even more often, depending on the number of stock carried. The essential problem is that of converting store stock country into fat stock country and carrying more stock and yet more stock in order to build animal fertility into the land and make it carry high-producing, safe pastures, whether for fattening lambs or feeding dairy cows. Under Southland conditions fat lamb pastures can be built up only by heavy use of lime. During the early years, when the land was not developed out of its natural state, and indeed, until the benefits of applying lime to the land in much larger quantities than had been done became known, dairy farming was the foundation-stone of the economic structure of the farming industry in Southland. Since the breaking of the financial shackles imposed during the years of economic depression, lime, costing 11/- per ton in pre-war days and rapidly expanding in use, has been responsible for changing the main current of the province's production from butterfat to fat lambs.

Main Dairying Areas

Dairy farming in Southland is confined below the Hundred Line, a survey line running in an east-west direction from a point a few miles above Gore, through Lime Hills (6 miles north of Winton), and extending as far west as Wreys Bush. The main dairy-farming areas today are the coastal belt, where the rainfall is approximately 50in. per annum, and the fertile valley along the lower reaches of the Mataura River, between Mataura and Titiroa. Outside these areas, while almost every district in the province below the Hundred Line has its own cheese factory, the trend over the past two decades has been away from dairying. The chief factor determining whether dairying or fat lamb farming offers the greater inducement is the size of the farm. Farms of more than 200 acres are now generally regarded as sheep farms, and even many highly-developed farms of no more than 200 acres have been converted to fat lamb farming. It is on the farms of under 200 acres that dairying is still practised in Southland, outside of the main dairy-farming districts.

Table II shows the stock position in Southland in 1942, the latest year for which data are available.

TABLE II—LIVESTOCK NUMBERS, SOUTHLAND, 1942.†

Total cattle.	Dairy cows in milk.	Sows.	Sheep shorn.	Dairy cows in milk per 100 total cattle.	Sows per 100 dairy cows.	Dairy cows per 100 sheep.	Total cattle per 100 sheep.
* 117,392	46,778	694	1,935,146	39.8	—	2.4	6.1
‖ 39,811	12,739	220	700,142	32.0	—	1.8	5.7
‡ 157,203	59,517	914	2,635,288	37.8	1.6	2.2	5.9

*Southland County. ‖Wallace County. ‡Southland total. †Exclusive interior boroughs, etc.

The above figures clearly show three important features relative to farming in Southland:—First, the relative importance of the sheep and dairying industries, sheep outnumbering dairy cows by 45 to 1; second, the extremely minor place given to pigs on dairy farms, and third, the suitability of the pastures for cattle. While dairy cows comprise less than 30 per cent. of the total cattle, nearly 6 cattle beasts (including herd replacements, bulls, etc.) are carried for every 100 sheep—a reflection of the productiveness of Southland's pastures and of the necessity, in spite of the steady decline in dairy cow numbers, of employing cattle to control pasture growth. Conversely, Southland dairy farms always maintain a proportion of ewes, partly to control ragwort and partly because sheep can make relatively better use of the older pastures than can dairy cows, thus helping to prolong the profitable life of the pastures. These ewes are generally full- and failing-mouth ewes, five years or older, which rapidly put on condition when bought in March and run on a paddock that has been allowed to freshen up and which, mated with Southdown rams, throw a big crop of early-maturing fat lambs.

The relative proportion of cows to sheep on Southland dairy farms is determined by a number of factors, apart from any consideration of the quality of the land. On the smaller farms of, say, up to 150 acres as many cows as possible are milked and the number of sheep reduced to what may be necessary to control the ragwort, but on the larger units the number of cows milked may depend more on what labour is available than on the size of the farm. If there is adequate labour available within the family group, or suitable accommodation for employees, the herd may be maintained at the limit of what the farm is capable of carrying, but if labour is scarce, the herd may be reduced in numbers to what can be conveniently handled and the ewe flock increased accordingly.

Climatic Conditions

While the climate lacks great extremes, there is a long "dead" season, lasting from May into September, sometimes to the end of September, or even into October. September often brings cold winds which persist and retard spring growth as long as the snow lies on the Takitimu Mountains to the north-west. In normal seasons March and April rains flush

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the paddocks and provide sufficient feed to carry stock through to the end of May and roughage for a run-off from the turnips. The most critical period of the year is the month of September, when there is sometimes a break between the last of the turnips and the start of the spring grass growth. Usually there is good sheep feed towards the end of September and good cattle feed about a fortnight later.

The annual rainfall varies from about 50in. along the coastal area to 35in. around Winton and is fairly equitably distributed. The climate, in general, is one that favours stock farming. If it should let the farmer down at one season, it usually compensates him later.

Southland land cannot stand prolonged dry weather without the feed position suffering. Ideal summer conditions are experienced when there is just enough rain to keep the grass growing and sufficient sunshine to harden the growth for the fattening lambs.

Dairying Season

The dairy factories open on September 1 in the Edendale district and usually about a fortnight or three weeks later in less-favoured districts. Supplies are small in the first month, as usually there is not much grass growth for cows before October.

The production per cow in Southland as compared with that of the South Island as a whole and the per cow production of cows in the North Island are shown in table III.

TABLE III—PER COW PRODUCTION IN SOUTHLAND, NORTH AND SOUTH ISLAND, AND DOMINION.

	1940-41. lb. butterfat.	1941-42. lb. butterfat.	1942-43. lb. butterfat.
Southland ..	215.4	215.5	212.0
North Island .	234.9	217.4	207.6
South Island .	206.0	208.0	203.0
Dominion ..	232.1	216.6	207.2

Winter Feeding

The dairying season usually ends about the end of May, or early in June, after which special feed must be provided to carry stock through the winter and early spring, up to the end of September. The basis of winter feeding in Southland for cattle, as well as for sheep, is the swede and yellow turnip crop, with some chou moellier, kale, and soft turnips. Swedes grow exceptionally well in Southland; in fact, one might almost say too well, because in the past the practice has been, and still is on many farms, to take advantage of the facility and the cheapness of growing this crop, to rely solely on the swedes, with a run-off for winter feeding.

An increasing number of farmers, however, are discovering that an unbalanced turnip diet, supplemented with nothing better than a run-off on roughage, is not sufficient foundation for the high production that can be expected from the province's stock and pastures.

The following data sets out the winter feed position for the 1941-42 season in the Southland and Wallace Counties:—

Swedes	.. 31,832 acs.	Other green fodder	.. 167 acs.
Turnips	.. 59,194 acs.	Hay	.. 31,158 acs.
Mangolds	.. 270 acs.	Silage	.. 583 acs.
Kale and chou moellier	.. 11,067 acs.		

The winter feeding practice in Southland is fundamentally different from the standard North Island practice, which depends largely on hay and silage. On the basis of two tons of hay per acre, the amount of hay saved in Southland is sufficient to provide a ton of hay for every dairy cow, leaving nothing for the young replacement stock and nothing for the province's 2,635,288 sheep. It is probable, however, that most of the straw from the 18,000 acres of oats threshed is used for cattle fodder in the earlier part of the winter. Over the war period there has been a large increase in the use of hay-making machinery, and, as Southland is pre-eminently a grass-farming province, it can confidently be expected that the use of such machinery will extend and that the saving of hay will become an increasingly popular feature of farming practice in Southland.

It will be noticed also what a small part silage plays in saving the province's surplus spring grass growth for periods of scarcity. Although often enough at hay-making time in December the weather is rather unsettled and favours ensiling rather than haying, a factor which must be accounted in some measure, at least, responsible for the usual belated adoption of hay-making, silage is not likely to increase in popularity. This is because hay rather than silage is required as a complementary feed to the turnips and that, because of the much larger provision of winter feed in the form of roots necessary in Southland and the relatively smaller spring-time flush of pasture growth in the southern province as compared with North Island dairying districts, it is not possible to enclose as large a proportion of the pasture area to provide both silage for the maintenance of autumn production and hay for winter feed.

Edendale Dairying District

The Edendale district, widely known as the stronghold of the dairying industry in Southland, is situated in the Mataura River valley, on the west side of the river between Ota Creek on the main highway, 2 miles north of Edendale, and Seaward Downs, about 4½ miles south of Edendale. On the west it is bounded by the low chain of hills running in a south-westerly direction two miles west of Edendale township, which is the thriving centre of the district, with an important industry of its own in the Dairy Products Company, which draws the whey supplies from a group of six cheese factories.

In its widest sense the Edendale district is usually taken to include the smaller district of Menzies Ferry as well. A strip of land of similar type lies across the river around Wyndham, south of which, down the

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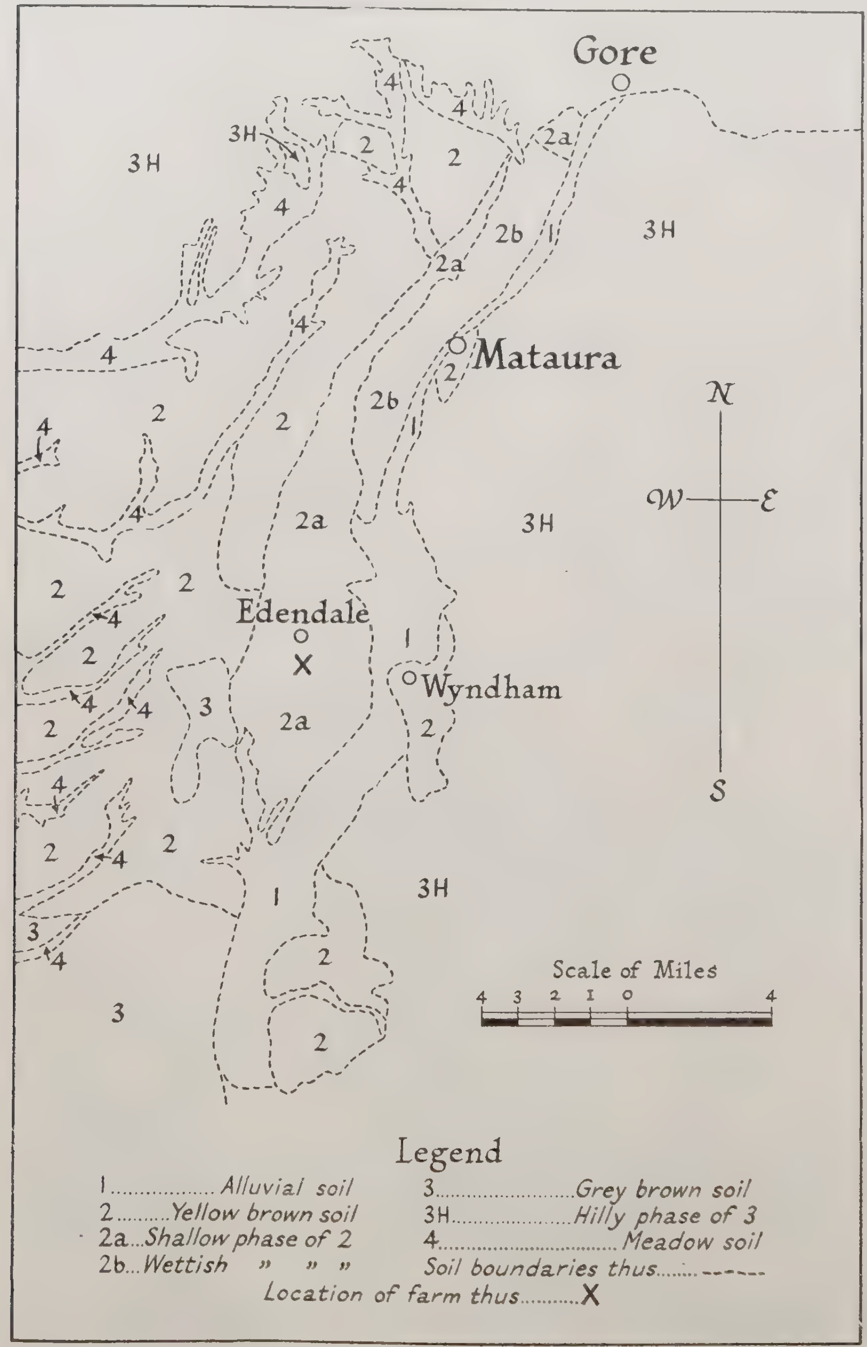
river, lies the Mataura Island, with the best alluvial land in Southland. In its narrower sense the Edendale district comprises the practically level land of the low terrace between Ota Creek and Seaward Downs. At Menzies Ferry this terrace drops down to river flat land, intermediate in quality between the terrace land and the land at Mataura Island.

A sketch map of the broad soil types of the Edendale district appears below. The alluvial soils are silt loams or sandy loams deposited along the recent flood plain of the Mataura River. The yellow-brown soils are friable silt loams occurring on the terraces and undulating uplands of Southland. On type 2a a gravelly subsoil is found within 24in. of the surface. The grey-brown soils are also silt loams, but they are more dense and poorer-draining soils than the yellow-brown types. Greyish clays classed as meadow soils occur in the swampy valleys of the Waihopai River.


Gore
Mataura
Edendale
Wyndham
X
3H
4
2
2a
2b
1
3
N
W
E
S
Scale of Miles
4 3 2 1 0 4
Legend
1.................Alluvial soil
2.........Yellow brown soil
2a...Shallow phase of 2
2b...Wettish " " "
3.........................Grey brown soil
3H....................Hilly phase of 3
4...............................Meadow soil
Soil boundaries thus.........------
Location of farm thus..........X

Edendale owes its reputation as a dairying district to the high fertility and the nature of its soil and to the suitability of the climate, with its average rainfall of 39.81in. per annum over the past eight years, distributed as follows:—

Jan.	4.79in.	July	2.39in.
Feb.	4.67 "	August ..	2.29 "
March ..	3.57 "	Sept.	2.18 "
April	3.33 "	Oct.	2.45 "
May	3.52 "	Nov.	3.87 "
June	3.02 "	Dec.	3.85 "

The distribution of the rainfall is a very favourable factor, influencing the maintenance of production during the best milking months of the season and, from July to December, favouring cultivation and spring sowing.

Water Supply

Under all the terrace land there is an excellent supply of pure water at a depth of 24ft. at certain seasons of the year, but descending to 30ft. in the summer. Windmills are a common sight on the terrace, but an electric pump can be used to supply water to every paddock of a farm.

Topdressing on the Plain

When Edendale was first subdivided into farms by the Australian and New Zealand Land Company free "shell" lime was made available to the settlers by the company. The rapid progress of the Edendale settlers, largely due to encouragement of the use of lime, quickly established the reputation of the district for dairy farming. The use of phosphate followed, first in the form of basic slag and then as superphosphate, but in the course of time it was found that the response from lime and superphosphate was not entirely satisfactory, and experiments with potash were initiated by one or two progressive farmers. They found in the combination lime, superphosphate, and potash the complete answer to the requirements of the Edendale plain, and since then the practice of topdressing with potassic superphosphate has become firmly established.

Butterfat Production

Table IV sets out the average production of butterfat per cow for Edendale and several other factories situated in the Mataura River valley for comparison with the figures quoted earlier for Southland and the Dominion.

**TABLE IV—
BUTTERFAT PRODUCTION PER COW ON EDENDALE PLAIN.**

	FACTORIES.			
	Edendale.	Menzies Ferry.	Seaward Downs.	Mataura Island.
	lb.	lb.	lb.	lb.
1940-41 ..	248.5	254.1	242.7	237.7
1941-42 ..	230.3	259.3	235.8	230.8
1942-43 ..	235.4	249.5	227.9	226.9
1943-44 ..	222.0	238.8	215.4	213.3

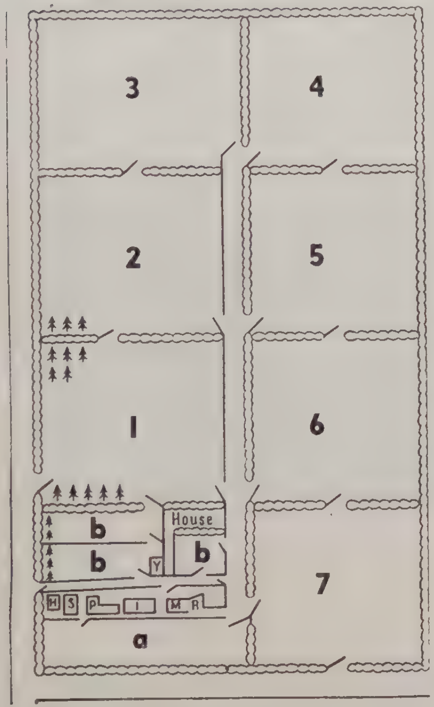
A TYPICAL EDENDALE DAIRY FARM.

In order to present a clear picture of dairy farming under Edendale conditions, a farm has been chosen on the terrace near Edendale, and the owner, as a practical gesture of appreciation in return for the pleasure he has derived from reading previous "Studies in Farm Management" that have appeared in this "Journal," has very kindly co-operated by supplying the information for the following part of this study.

Situation and Layout

The farm, situated two miles south of Edendale, comprises 130½ acres, 2½ acres of which are taken up by the steading site and a central gravelled stock-race 40ft. wide. The farm is subdivided into eight paddocks of 16 acres, all opening on to the central race, and every one with a supply of water for the stock. One paddock, in the shelter of the trees around the homestead, is subdivided into four small paddocks for bulls, calves and horses. For cropping purposes the paddocks are halved by means of a temporary fence, and an electric fence is used to enable forage crops to be fed off in breaks.

PLAN OF FARM



PADDOCKS.

No. 1: Fodder crops.
No. 2: 5th and 6th year pasture.
No. 3: 9th and 10th year pasture.
No. 4: 3rd and 4th year pasture.
No. 5: 7th and 8th year pasture.
No. 6: 1st and 2nd year pasture.
No. 7: 11th and 12th year pasture.
a: Horse paddock.
b: Bull and calf paddocks.

KEY.

M: Milking shed.
R: Concrete yard and race.
I : Implement shed.
P: Pig and poultry house.
S: Stable.
H: Man's hut.
Y: Sheepyard.

The buildings are of substantial wooden construction, in first-class repair and adequate for handling the livestock and housing the implements and plant.

Stock in 1943-44

The stock carried in the 1943-44 season comprised:—

60 dairy cows, including heifers.
12 yearling heifers.
15 heifer calves.
3 purebred Jersey bulls.
140 full-mouth Romney cross ewes.
3 Southdown rams.
4 draught horses and 1 spring carter for taking the milk to the factory.

The cows are grade Friesian, Jersey, and Ayrshire crosses. Jersey bulls from a strain with a high butterfat backing have been used for a number of seasons. The ewes are the best class of dairy farmers' ewes, bought for constitution, wool, and ability to throw a big crop of lambs. Cow numbers are up slightly on previous seasons. The usual number of ewes carried is 140 to 150. All the young stock is reared on the farm.

Implements

Implements include a light swamp plough, a double-furrow plough, 8ft. disc harrows, 5-leaf tine harrows, 9ft. Cambridge roller, 13-coulter drill, two-row ridger, double scuffler, binder, mower, hayrake, hay-sweep, stacker, dray and frame, and rubber-tyred 4-wheel trailer for milk cartage. The milking shed equipment includes a four-cow milking plant.

Production

The average production from the herd over the past three-year period was 300lb. of butterfat per cow from an average of 56 cows. The ewes shore 12.2lb. of wool in 1943 and 10.7lb. in 1944, while 190 fat lambs at 38lb. went off the property. In addition 150 to 175 sacks of oats are threshed.

Herd Management

The bull goes out with the herd on November 20 and calving begins about the end of August, the majority of the cows coming to profit during September, though a few late calvers may come in as late as November. The average drop of calves is 90 to 95 per cent. Twelve to 15 heifer calves from the best cows are retained for herd replacements, the balance being sold as bobbies.

All the cows in the herd have been regularly tested for a number of years.

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VIEWS OF FARM AND DISTRICT

Left—Application of lime has been the keystone to Southland's development. Right—Portion of the dairy herd.

Left—View showing layout of farm. In foreground a hard-grazed run-off paddock for cows coming off chou moellier. Right—Chou moellier grown with rationed fertiliser.

Left—Typical dairy farmers' ewes on good crop of chou moellier divided into breaks by few turnip drills. Right—Good crop of swedes near Edendale after tops have been eaten off by lambs.

Flock Sheep Management

Full-mouth Romney cross ewes, of sound constitution and well-woolled, are bought annually at one of the ewe fairs—it may be at Wyndham, Balfour, Riversdale, or Waikaia, where good shifting ewes can be obtained at prices ranging over the past three seasons from 16/- to 18/-. Values for dairy farmers' ewes range as low as 6/-, and many dairy farmers buy within the limit of fat ewe values around 14/- or 15/-, but this farmer considers that by buying the best class of ewe he is well repaid by the low death-rate, the extra lambs and wool, and the ability of this class of stock to winter more satisfactorily without extra care and feeding. These ewes are bought in March, dipped, and flushed on grass before being mated with Southdown rams the second week in April. Crutching is done in July. Lambing commences about the end of the first week in September, and the lambs are marked at the end of September. Usually about 130 per cent. of lambs are marked. About 80 per cent. of the lambs are drafted off fat in January after shearing, the balance going about the end of the month. After the lambs have been drafted off the ewes are employed to clean up the small house paddocks. They rapidly put on condition and are sold at freezing price to the works in March.

Herd Feeding

The quantity of milk and butterfat a cow produces is (1) an expression of her ability to convert the feed she consumes into milk and butterfat, rather than into body fat, and (2) a measure of her inherited capacity for converting feed above what is required for body maintenance purposes into milk and butterfat, taking into consideration the factors of management and local conditions. This Edendale farmer gives due consideration to both of these factors; to the first by breeding from high-class purebred bulls and selecting heifer calves from his best cows, and to the second by ensuring that adequate feed supplies are available at all seasons of the year to enable the herd to give a high measure of expression to its inherited capacity for production. The farmer's aim is to give the fullest practical recognition to the adage that "feeding is half the breeding."

Supplementary feeding of the herd commences usually on the last day of March, in order to maintain late autumn production. From then until the end of June soft turnips are pulled and carted out daily, the stock having access to them after they have been wilted for 24 hours. After the factory closes the cows go on to the chou moellier, which is fed off in six breaks. Oaten straw is also carted out daily at this time. The chou moellier carries the stock through to mid-August, and then the swedes are fed off, in four breaks, these lasting until the end of September, that is, a month after calving commences. The hay saved from 16 acres, on the average about 32 tons, is carted out daily round the various grass paddocks and fed to the cows while they are on the swedes. Hay feeding is continued into October, until there is sufficient grass on the paddocks. As the cows come to profit, and after the effects of the calving have worn off, they receive a ration of crushed oats, fed in the bails at milking times.

Calf Feeding

The calves are the foundation of the future herd, and merit the best of treatment. On this farm the calves are hand fed on whole milk until they are weaned at three and a half months. When they are two months old their milk ration is supplemented with a commercial proprietary feed containing cod liver oil and meatmeal. After weaning the calves are run on the hay paddock aftermath until the young grass paddock becomes available for them, when the oat crop has been harvested. Throughout the winter they receive hay daily and have their own breaks of chou moellier and swedes.

Sheep Feeding

The ewes that are bought annually in March rapidly freshen up on the paddocks. In June they go on to a break of chou moellier and through August and September clean up the swede tops. Only when the weather conditions are unsuitable for turnip feeding do they receive any hay.

Pasture Management

The object of the pasture management is to maintain the pastures in the best condition for the dairy herd, the cows getting the grazing of the youngest and best paddocks, while the sheep are concentrated on the oldest paddocks.

The topdressing practice on this farm is to topdress the whole of the farm in August, the cow paddocks with 3cwt. per acre of potassic superphosphate and the sheep paddocks with 2½cwt. per acre of cobaltised superphosphate. In the past a ton of lime per acre was applied to the pastures every third year, but in more recent years 10cwt. of carbonate has been applied annually with the topdressing in the spring.

Cropping Programme

The annual cropping programme is:

7 acs. swede turnips — Elephant, Majestic, Suttons' Green Top.
1 ac. soft turnips—Purple Top Mammoth, Green Globe.
1 ac. Purple Resistant turnips.
7 acs. chou moellier.
8 acs. new grass sown out with Gartons Onward oats.

As a rule 8 acres of lea is broken up each year for 7 acres of swedes and 1 acre of turnips. In the second year 7 acres of chou moellier and 1 acre of purple turnips are grown and the whole area is then sown out to oats and grass.

Cultivation, Sowing, Manuring

The lea ground is ploughed in June or July, usually July, 7in. deep with a swamp plough, using a cut coulter and turning a flat furrow 14in. wide. It is then left lying up to the weather till the end of August, when it is double disced and limed with a ton of carbonate to the acre. A stroke of the harrows is given at the end of September, followed by a double discing at the end of October or beginning of November. The ground is then harrowed twice and rolled twice before the swedes are ridged the last week in November, just over 1lb. of seed (a heavier seeding of Majestic) per acre being sown with rather more than 4cwt. of proprietary turnip manure in 28in. ridges. The soft turnips are sown at the same operation, 1lb. of seed being sown with 3½cwt. of the same manure. In the second year of cultivation the ground

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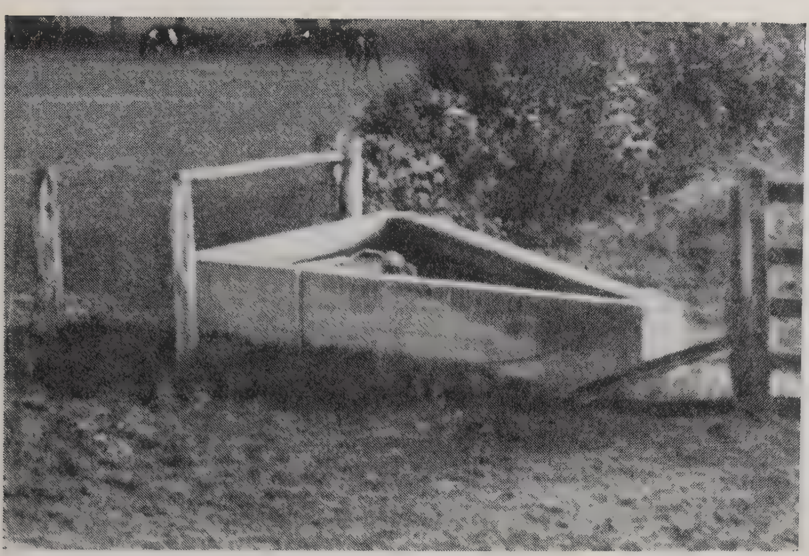

A neat type of water trough set into the corner of the paddock and occupying little space.

is disced as soon as the swedes have been eaten off, usually at the end of September, and is ploughed in October with a double-furrow plough turning a 6in. furrow. It is then disced, harrowed, and rolled, then harrowed and rolled again just before the chou moellier is ridged during the second week in November. Before ridging 2½cwt. per acre of potassic superphosphate is broadcast and a further 2½ to 3cwt. of reverted superphosphate is sown with the seed. The seeding is 1½ to 1¾lb. of seed per acre in 28in. ridges. (N.B.: The fertiliser quantities stated were those available before the inception of rationing).

The Purple Resistant turnips are sown during the third week in November, between the sowing of the chou moellier and the swedes, at the rate of slightly under 1lb. of seed per acre with 2½cwt. of reverted superphosphate.

In the third year of the rotation, when the land is sown down, the ground is ploughed at the end of August with the double-furrow plough to a depth of 6in. with a special widening device which allows the chou moellier stalks to be turned under and buried. It is then rolled on the furrow to ensure consolidation and to prevent the formation of a non-conductive air space at the bottom of the furrow. After double discing and then cross discing the ground is limed with 1 ton of carbonate per acre and left lying until the end of September, when it is harrowed twice and rolled. The first week in October the ground is drilled with 1 bag (4 bushels) of machine-dressed Gartons Onward oats and 2½cwt. of superphosphate per acre. The ground is immediately harrowed and rolled and the grass seed sown. The chain harrows and the roller follow to cover the seed and complete levelling and consolidation. With the grass seed potassic superphosphate at the rate of 2cwt. per acre is sown.

The grass seed mixture sown includes:—

Certified Mother perennial ryegrass	25lb.
Italian ryegrass	3 "
Certified P.P. cocksfoot	6 "
Timothy	2 "
Certified Montgomery red clover	3 "
Certified white clover	2 "
Alsike	1 "
Total	42lb.

The oats are ready to harvest about the end of January in a normal year. They are cut with the binder, often with the assistance of a revolving shedder. Eight tons are stacked for horse feed and the balance is threshed out of the stook. If the crop is a good one, 2 acres will yield 8 tons of chaff, but 3 acres may be required if it is a light one. Usually from 120 to 140 bags of oats are threshed; sometimes as many as 175.

The swede and turnip seedings are heavier than is usual in Southland, but on this farm the unusual practice for Southland of thinning and hand hoeing the crops is adopted. This applies also to the chou moellier. Inter-row cultivation with the double scuffler is continued as long as possible.

Grassland Management

Neither on this farm nor in Southland generally is the northern practice of saving certain autumn-topdressed paddocks for early spring grass adopted. Throughout Southland, however, a practice that is becoming increasingly popular is that of sowing an autumn catch crop of oats, ryecorn, barley, or Italian ryegrass on the oat stubble ground to tide stock over the lean September period. On the farm under review no place can be found for this practice, for a number of reasons: first, because the high stock concentration makes it necessary to get the land under the plough sown out again to permanent pasture as quickly as possible, and second, because with good hay and a heavy crop of hand-thinned swedes, supplemented with bail feeding, stock can be carried satisfactorily through the critical period until the grass comes away fresh and strong. The slight disadvantage of a lower-than-average herd production of butterfat in September is more than counterbalanced by the extra stock that can be carried under this system of management.

The cow paddocks are divided into day and night paddocks, the period of grazing gradually extending, as the spring advances, to 10 days up to a fortnight per paddock. The cows are given the grazing of the youngest paddocks, the sheep being concentrated on one and a half paddocks (a

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portion of a paddock being enclosed by an electric fence) up to the beginning of December, when those on one paddock are removed to one of the cow paddocks, possibly one which the cows have not altogether favoured. The first sheep paddock is then allowed to freshen up for the cows in January.

Towards the end of October 16 acres are shut up for hay, which is cut early in January and stacked by means of sweeps and a stacker. The average yield of hay is about 2 tons per acre. About the end of December or early January the paddocks are topped to remove any seed heads and to encourage later autumn growth.

Under this system paddocks are down in pasture for 12 years and are then under cultivation for three seasons, being sown down again in the third spring. At the end of 12 years the pastures are still of a high standard, the dominant species being ryegrass and white clover, which, because of the close grazing to which pastures are subjected through the winter, is well represented and shows up strongly during the summer. The small house paddocks have been down from 20 to 40 years and are carrying an excellent pasture. In these paddocks ragwort has been controlled by spraying with sodium chlorate.

Conclusion

This farm, through good management, is more heavily stocked than the average Edendale farm. On the Edendale plain the average stock carried per 100 acres, after allowing for provision of winter feed, is about 35 cows and 80 sheep, as well as the necessary young cattle, bulls, and horses.

High production on the farm under review has been achieved by a high standard of stock feeding and pasture management, and by maintaining every acre possible in high-class permanent pasture. The area devoted to cropping has been reduced to minimum proportions for the stock carried, but by great care and attention good crops are secured, which can carry the stock through the long winter period.

Acknowledgments

Thanks are expressed to the Soil Survey Division of the Department of Scientific and Industrial Research for data in the soil map and to the Lands and Survey Department for the drawing of maps.

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(2) Rationing new growth by "on and off" grazing until ample grass is available.
(3) Feeding hay and silage until the cows refuse to eat it any longer.
(4) Planning hay and silage areas for next harvest and harrowing the paddocks chosen prior to closing.

In addition, rear a few more heifer calves from good cows this coming season and so build up a supply of young stock to replace the extra cows that have been carried on to produce those few extra pounds of butterfat.

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CARCASS QUALITY

[*Sparrow Industrial Pictures photo.*

Importance of Producing Better Baconers

PAYMENT for pig-meats on a quality basis has been the active principle behind the progress made towards building up a sound and economic pig industry. Baconer competitions have been one of the means of educating the producer. The recent competitions held at Hastings, Patea, and Westfield have provided a striking example of the keenness shown by producers to meet present-day requirements. That there is still plenty of room for improvement is evident, but by comparison with standards of 10 years ago New Zealand has come a long way towards the improvement necessary to meet competition on the overseas market.

By

D. M. SMITH,

Assistant Research Officer, Ruakura Animal Research Station.

THE row upon row of bacon carcasses left on the killing floor of the Westfield Freezing Works on the completion of the recent baconer competition represented the work, thought, and patriotic feeling of scores of farmers. The country's appreciation of this effort was admirably expressed by speakers at the luncheon held at the works—it was a grand job and well done.

The carrying of these 2,000 pigs to bacon weight by July, when they would have either been slaughtered as pork or carried through the winter as stores, has resulted in a gain of some 60 tons of pig-meat when it is desperately needed. The real gain will be even greater, as the animals entered for competition in most cases were the pick of a number kept on the farm for the purpose of selecting the best four or eight representatives.

To produce 60 tons of pig-meat requires in the vicinity of 360 to 400 tons of meal or meal equivalents, plus hard work—growing crops, harvesting them, and feeding the results to the animals. To fatten any baconer in the winter is hard enough; to produce a superior carcass demands especial care in feeding and management. Even then a prize-winner cannot be developed out of an animal that is inherently poor in the qualities demanded of a prize-winning pig.

Signpost for Breeders

However, not only has each farmer who raised pigs for this competition done his country a good turn, he has, if he is prepared to use his score card intelligently, done himself a good turn. Expert judges have provided him with a signpost, directing his future breeding and feeding operations along lines destined to correct the weaknesses shown in his exhibit.

The industry as a whole should note the results of such competitions, because they expose our weak points as well as our strong ones. For this reason a survey of the measurements and points awarded on all carcasses entered in the recent baconer competition at Westfield is presented in this article.

The table below sets out the average marks awarded per entry of four pigs for the various characters. For comparison the points awarded to the winning entry and the maximum points possible are included.

Evenness of Weight:

In this character the average was high, but 66 entries not shown in the above summary showed a weight range in excess of the 26lb. allowable to gain the minimum allowance of two points. Over and above this many pigs were underweight, reflecting, no doubt, the difficulty some owners had in providing sufficient food for their animals through the difficult final months.

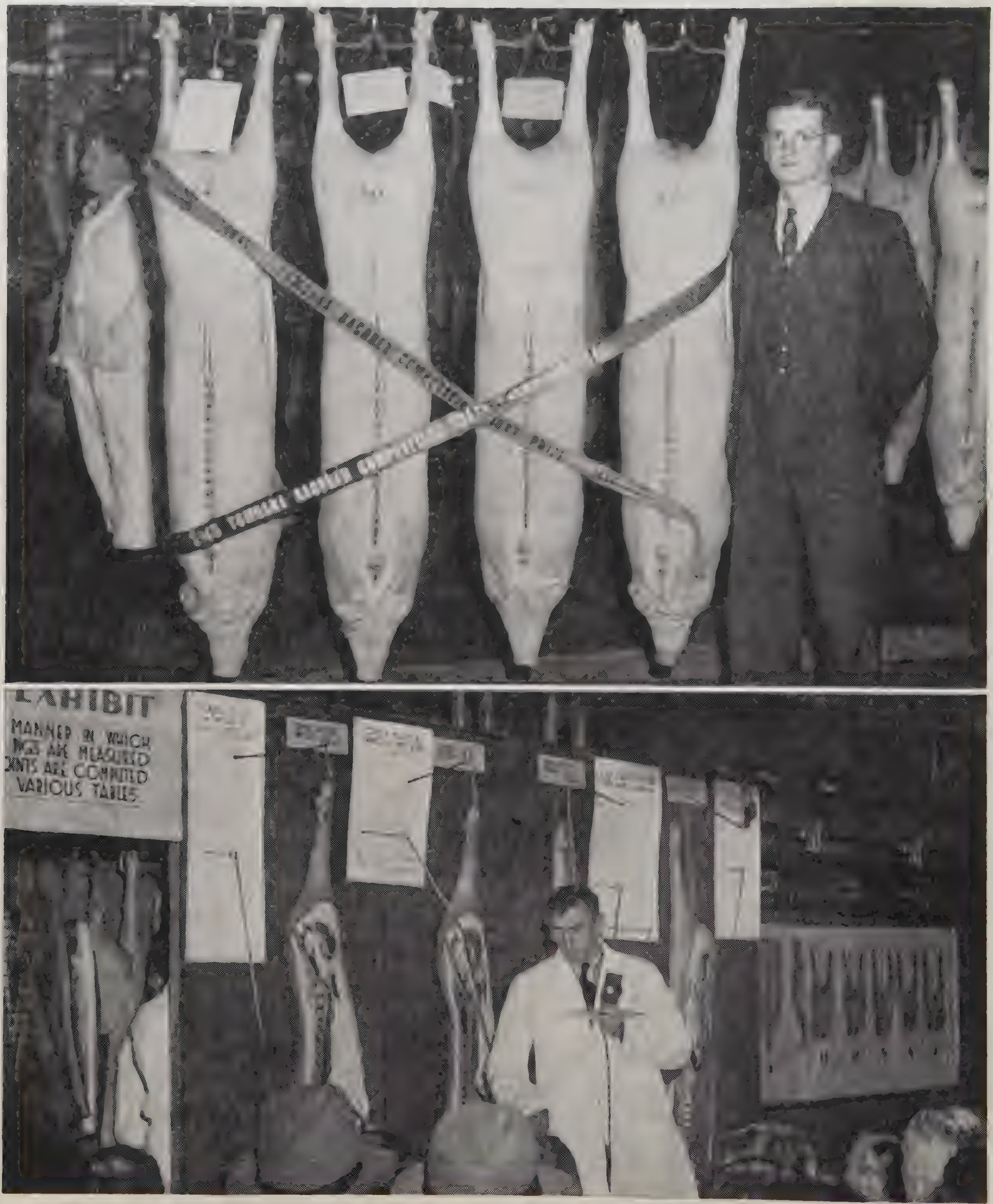
Balance and Depth of Side:

The average shown here is unfortunately low. This character is most important, points being awarded according to the ratio of the depth through the deepest part of the chest to the length. The balance of side has a real effect upon the appearance of the roll to be cut into rashers by the retailer. Good balance means a neat roll—less waste and more rashers

TABLE I—ANALYSIS OF JUDGING CHARACTERISTICS.

	Evenness of Wt.	Length.	Balance Side.	Back-fat. Loin.	Shoulder.	Hams.	Shoulder.	Loin.
Av. pts. awarded ..	7.07	39	22	47	26	39	25	21
Winning entry ..	10	61	36	72	27	45	30	32
Possible pts. ..	10	80	40	80	40	60	40	40

BACONER COMPETITIONS AT WESTFIELD


BACONER COMPETITION
XHIBIT
MANNER IN WHICH
IGS ARE MEASURED
INTS ARE COMPUTED
VARIOUS TABLES

. Upper—Mr. V. Cope and his winning entry in the North Island baconer competition championship. Lower—Dr. C. P. McMeekan, superintendent of the Ruakura Animal Research Station, explaining the system of judging.

[*Sparrow Industrial Pictures photos.*

per side. In the unrolled side excessive depth means an unsightly and less saleable rasher. The suggestion often made that the stove-pipe appearance of prize-winning entries does not represent a good breeding type because of the lack of depth through the chest, apart from being substantially incorrect, does not alter the fact that such pigs are commercially desirable. The remedy for this weakness is two-fold; either to breed for less depth while maintaining the present length, or alternatively to breed for greater length while maintaining the present depth measurements. In this connection a study of the length averages is interesting.

Length:

The criticism often levelled at our bacon carcasses is that they lack length. That this criticism is unfortunately true is borne out by the fact that the average points awarded for length was less than 50 per cent. To show this tendency more clearly the average length of all pigs entered is summarised below according to the respective weight range into which they fall.

TABLE II—ANALYSIS OF LENGTH IN RELATION TO WEIGHT

Wt. range lb.	121-125	126-130	131-135	136-140	141-145	146-150	151-155	156-160	161-165	166-170
Av. length in inches ..	28.9	29.3	29.5	29.8	30.0	30.2	30.4	30.7	30.8	30.9
Best individual	31.75	31.0	32.0	32.0	32.0	32.0	32.0	32.5	32.5	33.0
Worst individual	26.75	27.5	27.5	28.0	27.0	28.0	28.0	29.0	29.0	28.75

The averages shown in the respective weight classes are such that in no case would they merit the award of more than 11 out of the possible 20 marks. This is an unpalatable fact that must be faced. While we continue to use the same type of pig for **bacon** in the spring and **pork** in the autumn we will be confronted with this problem of length. The position, though bad on the surface, is actually worse in fact. The animals entered for this competition were brought to bacon weight during the winter months. They were denied the usual skim-milk available to pigs from spring litters, and may be assumed to be longer in reaching killing weight and on the average older than such pigs would be. With more time for skeletal growth than summer baconers, they should be longer. If these averages are greater than could be expected of the bulk of our baconers, then the position is indeed bad.

However, from the breeders' point of view the two bottom lines of table II offer hope. Where there is variation there is room for selection. Up to 156lb. the best pigs—and there were several in each class—were well up to standard. There were also some very poor pigs, but the variation is there, and the possibility of selection for greater length accompanies it. Selection for an objective character, a measurable character, needs measurement as its basis. The only measurement which is really effective is that carried out on the carcass on the hooks.

Unfortunately the animal so measured is not of much use as a breeding proposition afterwards. The best of the litter can be saved, however, until the measurements of litter mates have proved their merit or demerit on the hooks. The breeder then can assume that the animal selected and saved will possess similar qualities to those shown by the litter mates already slaughtered. Again, the sire and dam of animals showing merit on the hooks can be used extensively for further breeding. This means of selection applies to all points mentioned in this survey.

Information on those points which affect the commercial value of a carcass is available to farmers sending in pigs for slaughter at any meat works. The Carcass Quality Scheme is operated through the local District Pig Councils, and intending participants should contact District Pig Council supervisors for information.

Back-fat, Shoulder and Loin:

Both of these characters were reasonably good, especially since the average age of entries was probably greater than that usually obtaining with baconers from spring litters. With the increasing age comes the difficulty of putting on the weight required as meat and not fat, and the average grading shows that there has been appreciation of this difficulty and an attempt to meet it. Whereas breeding can make the task of controlling back-fat easier or harder, the final result can be materially affected by feeding.

Hams:

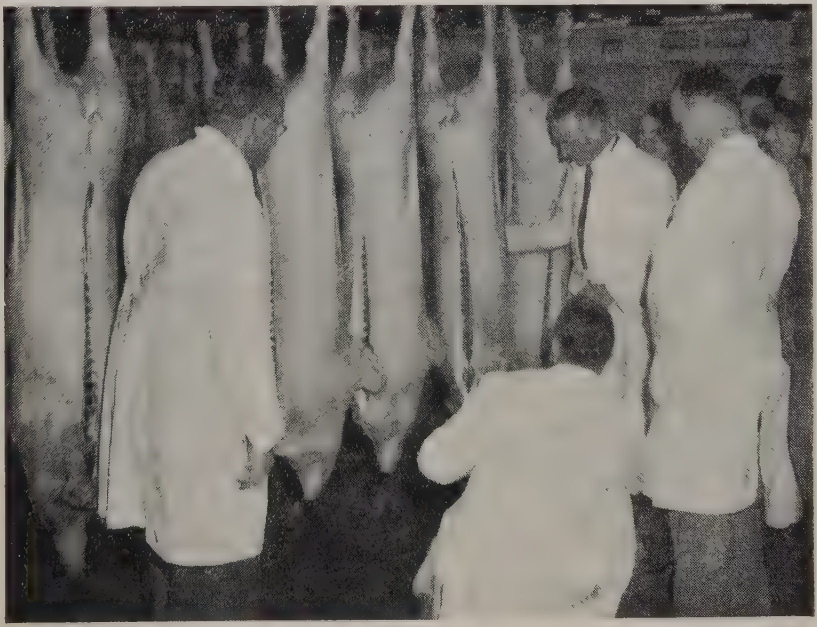
The general standard in respect to this character was high. It must be realised, however, as has been pointed out by the meat trade representatives, that a shapely ham must be full of meat and not merely filled out with fat. Some apparently pleasing hams on closer observation were found to suffer in this respect.

Loins (Fullness of Meat):

What is wanted here is a well-rounded, full loin. Again, as with hams, fullness must be attained with meat, not fat. The tendency was for loins in general to be a little too fat. A rapid growth rate up to about 180lb. live weight and a slow rate thereafter will tend to give a greater fullness of meat and a reduced fat covering here, as in the rest of the carcass.

Marketing Points:

This heading includes texture and colour of skin, freedom from hair, bruises and blemishes, and suitability



The judges at work.

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Left—The Hon. B. Roberts, Minister of Agriculture, and Mr. A. Rowlands, general manager of W. and R. Fletcher, Ltd., inspecting the entries. Right—Major Harris W. Hantman presenting the U.S.J.P.B. Cup to Mr. V. Cope.

[*Sparrow Industrial Pictures photos.*

of weight, and carries a possible 20 points per group of four pigs. It is an important feature in that otherwise good carcasses can be marred commercially if they fall short of the requirements in regard to any of the above characters. In general marketing quality the total entry was good. Too many, however, were coarse skinned, showed too much retained bristle, or were outside the required weight limits.

Texture of skin could probably be improved with better housing, shelter from extremes of temperature, and generally clean surroundings. This is a matter for the individual farmer. A more careful housing and sanitation policy would doubtless effect an improvement in the matter of retention of bristles also, as this appears to be associated with the coarser-skinned exhibits. Black-haired pigs are at somewhat of a disadvantage here, as the black bristles are immediately noticeable. However, despite this disadvantage, the majority of black pigs did dress out very well.

Conformation:

The criticism has been made that groups of four are too difficult to match for weight and type in a competition such as this. Two answers immediately spring to mind. One of our great weaknesses in respect to export bacon carcasses is the lack of uniformity. The difficulty encountered does not make the goal any less desirable—from a competition or from a national point of view. Further, surely the real test of any breeding policy is the ability to produce animals of uniformly high quality. In any case the marks allotted to this feature are a bonus on the farmer's ability first to breed and select for uniformity in type, and second to feed his group in a fashion which will ensure all the pigs reaching slaughter weight at the same time.

There is such a variation in growth rate, rate of maturity, etc., among the pig population that it is difficult to lay down any hard-and-fast rules about feeding policy. However, it is probably easier and more satisfactory to allow all pigs to grow as fast as they are capable up to 180lb. live weight and then hold the animals at or near this weight until the slower-growing ones catch up. Naturally, if the variation in weight is too great, this is not practicable, but with pigs starting at similar weights it should be possible. To hold three fast growers while the other one is catching up requires individual treatment for that single pig. The men who have fed and bred prize-winners in these competitions are those who have been prepared to take this trouble. A hurdle across one end of the sty so that the favoured animal can feed at peace and at his leisure is all that is required. Apart from actual feeding time, all the animals can run together. From 180lb. on the ration should be cut so that the last 20lb. is put on slowly. By the time this weight is reached the period of

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meat formation of the carcass has passed its optimum and the aim is to reduce fat deposition to a minimum, while allowing maximum meat formation even at the reduced rate. With bulky foods such as roots and other winter foods, all comparatively rich in fat-forming nutrients, this is a difficult job, as every farmer who has tried it realises, and the only possible way of gaining any measure of success is by the use of a high protein supplement such as pea-meal or meat-meal.

Influence of Sex

Nearly 40 per cent. of the pigs comprising the winners of the first three places in each district were females. Mr. Cope's winning entry were all females, as were Mr. H. E. Johnson's winning entry last year. The second place in the championship was also comprised of females. In general sows kill out on the average better than barrows. The advantage is seen in the points awarded for fat at shoulder and loin, the sows gaining on the average somewhat better points for this character. That this should be so is in line with research work on carcass quality, and is a point which could be borne in mind in future entries.

Summary

The results of this competition can be of value to the individual farmer and to the industry as a whole if the weaknesses shown by the exhibits are recognised and an endeavour made to improve on them. In particular, attention should be paid to selection for length, but balance of side must also be kept in mind, and, if greater length is achieved, it must not be accompanied by a deepening of the chest if a general improvement is to be made.

Shoulder and loin fat marking were good, and especially so when the feeding difficulties are taken into consideration. Loin or fullness of meat was rather poor, and efforts should be made to improve this character. Emphasis should be placed upon rate of growth up to about 180lb., which should enable greater meat development to be made in this area. Again the feeding difficulties at the time of the year made proper control difficult.

Every effort should be made to house animals and keep them free from mud and temperature extremes, not only from a general management point of view, but also to enable entries to show less coarseness of skin texture and less retention of bristle.

In general, for a competition of this kind a little more care in feeding should be taken, so that greater uniformity is achieved among pigs in the same entry. It is suggested that starting with pigs of uniform weight and age as rapid a growth rate as possible to 180lb. should be aimed at and a restriction and individual attention from this stage on to smooth out any weight differences.

Sex differences tend to be in favour of the female, especially in regard to loin and shoulder fat.

Briefly, the entries showed that while the standard for some characters was low, such characters can be improved, and that the better animals showed that they had the qualities lacking in the mass. That such features as length, depth of fat, etc., are capable of substantial improvement is shown by the advances made in respect to these points by such countries as Denmark.

* * *

Pig Industry Broadcasts

UNDER the auspices of District Pig Councils broadcasts will be delivered in October as follows:—

Auckland—1YA, on October 17, at 7.15 p.m., "Bacon Competitions and What is Behind Them," by H. Preston, Supervisor, Northland District Pig Council.

Dunedin—4YA, on October 8, at 7.15 p.m., "Avoiding Losses in Pig Production," by N. McDonald, Supervisor, Otago and Southland District Pig Council.

Napier—2YH, on October 11, at 7.15 p.m., "Questions and Answers," by H. Hopkins, Supervisor, Tairawhiti District Pig Council.

Palmerston North—2ZA, on October 19, at 7 p.m., "Feeds and Feeding—Garbage, Roots, Grain, and Dairy By-products," by L. Marsdon, Supervisor, Wellington District Pig Council.

* * *

NEW BACON JUDGING STANDARDS.

New standards for judging baconer pigs have now been finalised. All pig raisers should study the information in Bulletin No. 243, "New Bacon Judging Standards," which is available free from offices of the Department of Agriculture.

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Making Most of Restricted Supplies

By

I. L. ELLIOTT,

Supervisor of Fertiliser Supplies, Wellington.

FERTILISERS

WITH the start of the new fertiliser rationing year has come the realisation that even now the supply position is insufficiently good to warrant the removal of the rationing regulations. The controls which are imposed as the result of wartime conditions are as distasteful to those who administer them as to those at the receiving end. There is, however, absolutely no doubt that a continuation of fertiliser rationing is necessary to maintain equity of distribution.

READERS will remember that last year we were supposed to get more phosphate than the year before. We actually did get that phosphate, and consequently were able to announce a special ration based on 1cwt. per dairy cow, and various increases in the schedule of quantities for each acre of crops. This year the quantity of rock available for distribution has again been increased, and the provisions for the 1945-46 rationing year, already publicised, are briefly as follows:—

1. **The elimination of the special ration for topdressing dairy farms formerly available at the rate of 1cwt. per dairy cow.**
2. **An increase in the basic ration for topdressing purposes from 28 per cent. to 42 per cent.**
3. **The re-opening of the appeal procedure.**

There has been some criticism of these provisions, principally on account of the removal of the special ration for dairy farmers. The implications of this measure were fully realised by the National Council of Primary Production, but it was felt that in view of the demand from overseas for other than dairy products, it was impossible to justify continued preference in the matter of fertiliser supplies for the dairy industry.

Now that the new rationing regulations have been announced, many farmers will be considering how to make the best of their allocation. Frequent reference has been made in the "Journal" to this matter, but it seems opportune to give a re-statement of the position.

Helping Out Ration

The first question one asks is what substitute materials can be used in place of fertiliser? Actually there are no completely suitable substitutes, but there are quite a few things which help.

Probably the most important material available for use on dairy farms is the livestock excreta dropped round yards, which can be collected in tanks and distributed on the pastures from suitable portable containers. The whole of this question is fully dealt with by Mr. G. A. Blake in his article in the May, 1945, issue of the "Journal."

Although lime cannot in any way be viewed as a substitute for phosphate, it can be viewed as being a great help in the efficient use of phosphates. If a soil is deficient in lime, there is every chance that the added phosphate, particularly if it is in the water-soluble form, will become "locked up" and unavailable to plants. When plenty of lime is present it enters into combination itself with the phosphate, and holds it in such a way that the plant can draw on it when necessary. In this way, therefore, the use of lime will help to make the allowance of phosphate go further.

It must not be overlooked, either, that lime is itself an important mineral in the growth of plants. Under most conditions in New Zealand soils it is present in sufficient quantity for purely plant food purposes, but there may be certain conditions where lime is necessary from this viewpoint alone.

Most plants grow best under certain conditions of soil acidity, and are frequently only tolerant to changes within a narrow limit. For general purposes it is desirable that soils be on the slightly acid side of neutrality.

The fact that plants react to changes in soil acidity is clearly shown where applications of sulphate of ammonia have been made to golf greens over many years. In this instance the clovers and demanders of less-acid conditions have disappeared, to be replaced by a browntop-dominant soil covering. If the process is reversed and lime applied to a sour acid soil supporting only browntop, clovers and other grasses will begin to appear as the soil approaches neutrality. By assisting in keeping general soil conditions right, the use of lime helps to conserve the use of phosphates.

Much attention has been focused of late on compost, and many recommendations made about its preparation. Composters have at least performed the very useful service to the community of focusing attention on the importance of humus in the soil.

The collection of livestock excreta in tanks and its distribution on pastures from portable containers are most important means available to the dairy farmer of supplementing his fertiliser ration.

Where arable cropping is practised or where the inter-cultivation of fruit trees has to be performed much can be achieved to conserve supplies of fertilisers by growing green crops such as cape barley, oats, or lupins, and ploughing these in. In many cases it is better practice to feed off the green crop in situ, when the material is ultimately returned to the soil through the excreta of the grazing animal.

Making Best of It

Having covered most of the means at the disposal of farmers of using materials which to some extent can be considered complementary to fertilisers, some consideration can now be given to the use of the actual quota made available. It seems that the problem has been substantially answered when the farmer is told, "Put on the right kind of fertiliser in the right way, at the right time, and in the right place." A statement of this type is, of course, very indefinite, and requires modification, but the modifications required are those imposed by the conditions under which the farmer himself works and of which he should be a capable judge.

Using the right kind of fertiliser will help in using fertiliser to the best advantage, because the right kind of fertiliser to use is obviously the most efficient one under the particular circumstances concerned. The common answer to the enquiry, "What kind of fertiliser shall I topdress my paddocks with?" has been, "Superphosphate." Departmental trials carried out for some years have tended to show that superphosphate is not always the answer to the farmer's prayer, and that in a very large number of cases serpentine superphosphate more closely approaches the ideal. In still other cases basic slag gives better results than straight superphosphate and in still others lime-reverted superphosphate comes out on top. In some localities and for some purposes it is not even advisable to stick to a purely phosphatic fertiliser, and potash and perhaps nitrogen should be used as well. Although the answers to all the questions about fertilisers and their use are not yet known, the most reliable

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source of information in all these matters will be the local Instructor in Agriculture.

Applying Fertiliser

The ways in which fertiliser can be applied to the soil are not very diverse, and for topdressing purposes the fertiliser cannot be incorporated in the soil, and must therefore be simply distributed as evenly as possible over the surface. When it comes to using fertilisers for cropping purposes or for the establishment of new grass there are several interesting possibilities for achieving better plant food uptake.

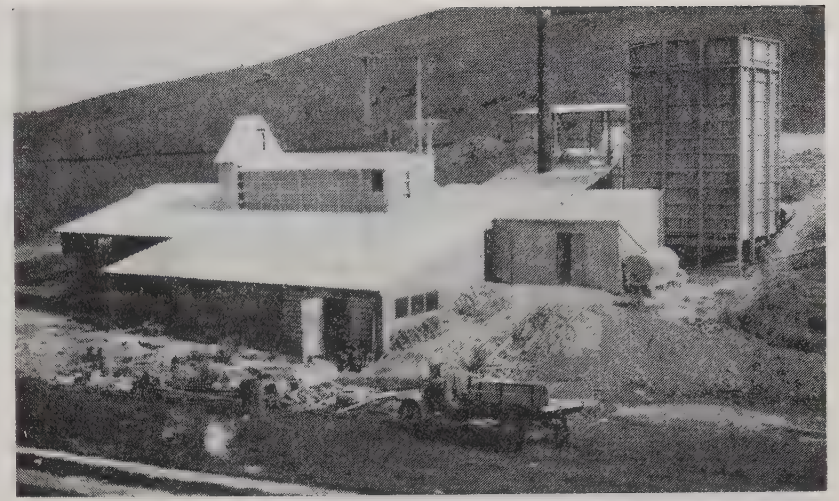
In certain parts of America it was found that the wheat crop suffered from nitrogen starvation during long dry spells, so the theory was developed that if the fertiliser was "put down" it would be away from the dry surface layers of the soil and would be in a position where the plant roots could use it. This theory was found to be sound, and much overseas literature is giving prominence to the value of putting fertiliser down. For best results special attachments were used on the plough and the fertiliser was applied in a band on the plough sole. Here in New Zealand these special attachments do not seem to be available, and the nearest approach to the method can be achieved by broadcasting the fertiliser and ploughing it in. That such methods are of application here under some circumstances, at least, has been demonstrated by Jacques at Massey College and by later work at Massey College and by the Fields Division of the Department of Agriculture. Although this method commends itself as being well worth a trial, particularly in the drier areas of New Zealand, further experimental work is necessary, and will no doubt engage the attention of the new Fertiliser Research Station at Hamilton in the near future.

In order to give the plant a rapid and vigorous growth in the early stages of its development, certain "starter" dressings were given. These were applied as close as possible to the seed, but not so close or in such a way as would damage the seed or the root hairs after the seed had germinated.

Under conditions where intercultivation is normally carried out dressings in bands can be made alongside the rows of plants or alongside the seed at the time of sowing. Placing fertiliser in this way ensures its efficient use and its minimum loss in the soil.

Time of Application

There has been and is likely to be for some time to come considerable difficulty in making deliveries of fertilisers to farmers at the time when they would do most good, and to this extent the time of application has in most cases been outside the control of the individual farmer. In those cases where storage space is available supplies can be taken in and held until such time as they are required. If this is done, only a fertiliser which can suitably be stored should be accepted. Assuming, however, that the fertiliser is available to be used when required, it should under most North Island conditions be applied in the autumn, say in March or April. If it is applied too late, there is little doubt that much of its efficiency will be lost. Under South Island conditions spring applications can be made with excellent results and in such a way that they do not conflict with the other urgent operations which take place on many farms in the autumn. Here again there is room for variation, and in the warmer parts of the South Island where North Island conditions are approximated autumn applications are better. In the far south spring applications are to be favoured, on account of the more lengthy and severe winters.


Lime is a great help in the efficient use of phosphates, and is itself an important mineral in the growth of plants.

Where to Topdress

A further point of importance in the application of the fertiliser on any individual farm is which particular paddocks or part of the farm to topdress. This is essentially a question about which the farmer must make up his own mind, although one or two general principles should be borne in mind. First, it is not much use under present conditions of fertiliser shortage to try to bring back run-out pastures with inadequate supplies. It will generally be more payable to look after the better pastures on the farm and to prevent them as far as possible from deteriorating. A sufficiency of clover in the pasture is absolutely necessary to get a good phosphate response, and to this end adequate dressings with lime will help the clover position.

Having now had some years of fertiliser rationing, many farmers will no doubt be asking themselves whether they can maintain their pastures as well with 1cwt. of superphosphate as they did pre-war with three. In some cases the answer will perhaps be yes. If the answer is positive over a considerable area, there seems little doubt that large quantities of fertiliser have in the past been wasted. That such is in fact the case is hinted at in some contemporary work. In the meantime, however, observations such as this should be treated with considerable reserve, although they open up interesting avenues for speculation.

PASTURE PRODUCTION IN N.Z.

An outstanding summary of the appearance and uses of the grasses and clovers in the Dominion is given by S. H. Saxby in Bulletin No. 250, "Pasture Production in New Zealand." He discusses the different types of grassland—hill country, short rotation, permanent pasture, etc.—with the management and seed mixture required for each. The topdressing, harrowing, and topping of pastures, the making of hay and silage, the establishment of new pasture and many other important practical aspects of grassland management are dealt with in a clear and helpful manner. Every farmer concerned with getting the maximum from his pasture should obtain this booklet.

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Poaching of Land on Hauraki Plains

Left—Stock on badly-poached country are short of feed, poor in condition, and often covered in mud. Very wet conditions lead to high losses from deaths and disease. Right—General view of broken surface caused by poaching. Land becomes unproductive with creeping bent, pennyroyal, buttercup, and rushes predominating.

AT the present time, and for the next two months, the low-lying marine silts of the Hauraki Plains present a serious problem through their tendency to poach badly. This condition is brought about by certain factors. First, the natural drainage of this soil is not sufficient to permit of all winter rain to pass through it; second, the provision for removal of surplus water by surface drains is not always satisfactory; and third, the high summer carrying capacity of this land often means that it is called upon to bear heavy winter stocking when it is really too wet to stand up to such treatment. The result, then, is that the land cuts up very badly; much of the better pasture species is tramped out; rushes, pennyroyal, buttercup, and inferior grasses establish; and a condition of progressive deterioration sets in.

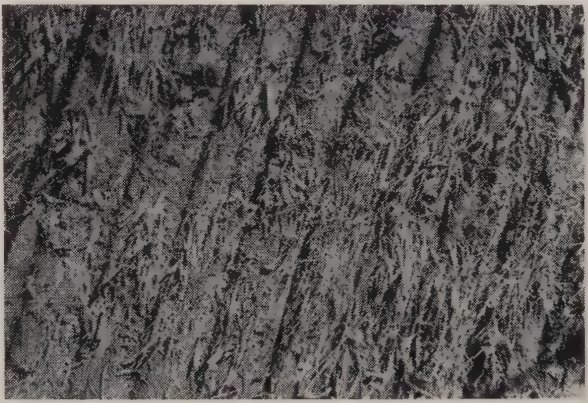
By

C. WALKER, *Instructor in Agriculture, Thames.*

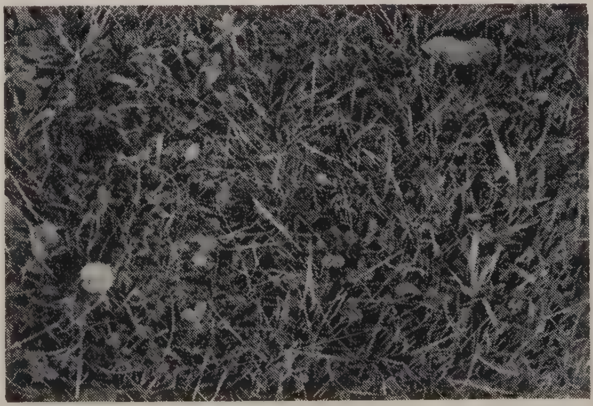
POACHING has always presented a serious problem to farmers on this land; in fact, it has even been the cause of many farmers failing in their ventures on this country. Remedies of varying types have been tried with just as varying degrees of success. Land has been disced down in the late spring and resown; it has been heavily harrowed and left; and in other instances it has just been left in the rough state. None of these measures is fully satisfactory. Late spring is too late to expect any material success with resowing.

An alternative method of treatment, which involves rolling the land while it is wet and soft, has been tried in recent years, with marked success in most instances. For this purpose a tractor fitted with wheel extensions is used to draw a Cambridge roller or a special concrete roller. Experience has shown that exceptional weight is quite unnecessary, and is often very detrimental in such a roller. As the object is merely to roll the land down to a smooth surface where the pasture re-unites, one should use a roller that is just sufficiently heavy to do this work. Very heavy rollers break through the turf, and often bury much of the grass, thus defeating the main purpose for which the roller is used.

This work should be carried out while the ground is soft, and as soon after the field has been grazed as one can get on it. Land dries out quite rapidly through the more even spread of surface water, but it should not be



Badly-poached country after it has been rolled with a Cambridge roller. Note how surface water has been eliminated and the soil rolled together. This work must be done while the land is very soft.



The same area as shown above three weeks later. Photographs are of an identical piece of turf. Recovery after rolling is very rapid, especially where shallow surface drains are provided.

assumed that rolling alone will overcome the problem of surface water disposal. In association with rolling there should be established a series of shallow surface drains for carrying away storm water to the main drains. These surface drains should not be deeper than say 9in. to 12in., but should be well battered back so that implements can pass over them. Such drain beds will also grass, and carry a certain amount of feed. A point of importance, where these shallow drains are provided, is that rolling should always be in a direction to pass over them and not parallel to them. By passing over them the shoulders, if any, of the drains will be rolled down so that water will pass quickly into them. Furthermore, by rolling across the drains, they will be evenly "ironed out" by the roller.

There is no time to waste. Most of the land is at present fairly wet. Much of it will be badly poached. If it is to recover satisfactorily, it should be rolled out immediately, and then spelled for some weeks. If there are no surface channels provided, these should be put in without delay. Both these operations will pay handsome dividends in the spring and summer. If they are done now, the prospects of having good, level pastures of excellent English grasses are practically assured. On the other hand, if there is any omission to perform this work on the poached country, buttercup, pennyroyal, rushes, and inferior grasses will be the legacy, which will pay the usual dividend of low butterfat returns for the approaching season.

Our commitments overseas for dairy products are too great to have such rich land as the Hauraki Plains pulling only half its weight through faulty winter management. It therefore becomes a duty to all to see that winter management is improved by adopting the methods advocated. The accompanying photographs show what can happen to such land, and how poaching can be remedied; so there should be no hesitation in putting into effect these better practices.

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Bluestone for Worm Control

OVER-APPLICATION DANGER

COPPER sulphate or bluestone is being largely used for worm control on playing greens, and it is understood that farmers on reclaimed swamp land are experimenting with this treatment on dairying pastures, particularly where a high worm population is associated with intensive poaching of the land.

A warning is given that heavy applications of copper sulphate may be detrimental to the health of grazing animals. In trials carried out on copper-deficient peat land Dr. I. J. Cunningham has shown that 40lb. per acre of hydrated copper sulphate or bluestone is the maximum application that should be given.

It is understood that farmers on the Hauraki Plains may be applying bluestone at rates up to 300lb. per acre, and every care should be taken to prevent possible stock losses on areas so treated. These should be spelled for a period, but in view of the fact that applications in excess of 40lb. per acre may cause stock losses, farmers would be well advised to limit the rate of application of copper sulphate to the figure quoted.

The Fields Division of the Department of Agriculture is planning field trials to investigate the problem of worm control by using copper and other materials. These trials will be commenced at an early date on the Hauraki Plains.

Radio Broadcasts

RADIO talks to farmers will be given from Station 1YA, Auckland, at 7.15 p.m. on the following dates:—

October 1.—"Wartime Farming in Britain," by Mr. G. A. Holmes, leader of the group of New Zealand Agriculturists on loan to the British Government, Department of Agriculture, Wellington.

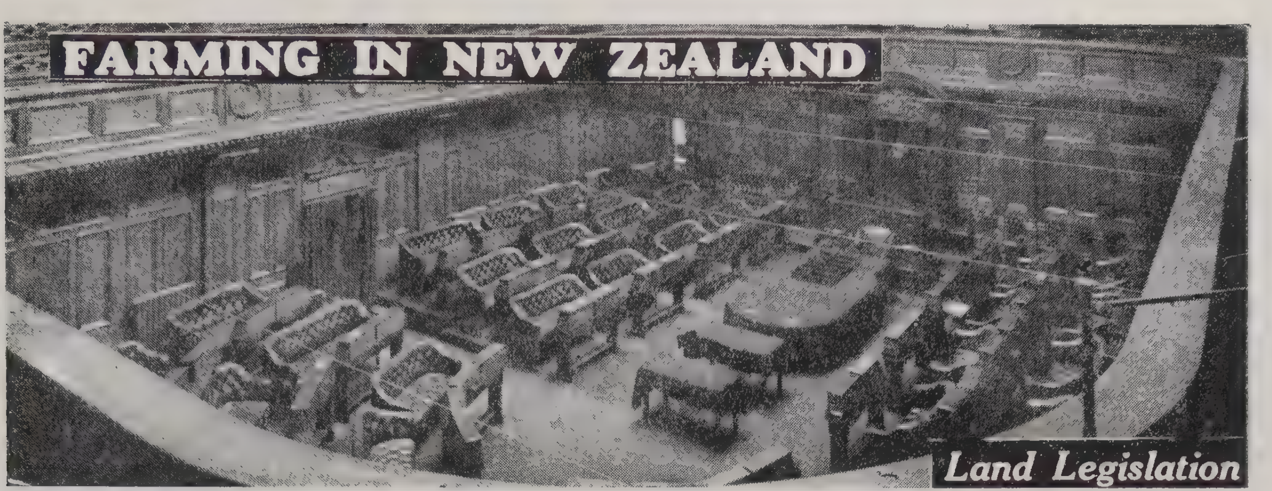
October 8.—"The Work of the Animal Research Station at Ruakura," by Dr. C. P. McMeekan, Superintendent, Animal Research Station, Ruakura.

October 15.—"A Review of the Present Fertiliser Position," by Mr. I. L. Elliott, Supervisor of Fertiliser Supplies, Department of Agriculture, Wellington.

October 22.—"Young Farmers' Club Session," to be given by a member of the Auckland district clubs.

October 29.—"Work During the Summer Months," by Mr. K. M. Montgomery, Fields Instructor, Department of Agriculture, Te Kuiti.

FARMING IN NEW ZEALAND



Land Legislation

OPPORTUNITY to acquire land was one of the main attractions which brought the early settlers to New Zealand. From that day to this the acquisition, disposal, and development of land have remained a profoundly important subject, and the Legislature has dealt voluminously with the relevant problems. This article attempts to analyse the economic consequences of the land legislation of the Dominion and to describe the evolution of the tenures under which the land is now held.

By

F. R. BRAY,
Field Economist,
Wellington.

THROUGHOUT the 100 years of settlement economic and political tendencies and aspirations have acted and reacted to form more or less clearly-defined periods of legislative activity. The problem in the early days of settlement involved attracting immigrants with the offer of land at prices sufficiently low to enable these early colonists to realise a standard of living more satisfying in all its aspects than that obtainable elsewhere, and yet at prices not so low that the patrimony of the country was recklessly given away at the expense of posterity. With the extension of the boundaries of settlement and with the shrinkage of the public domain, this problem inevitably gave way to others; to the problems arising from the demand for closer settlement and the development of inferior lands. Often what had been inferior lands in the undeveloped state proved highly productive once this development had been undertaken.

Such changes are reflected in the course of legislation. Contrast the Waste Land Regulations of 1853 offering land at 5s. per acre with the Land for Settlements Act, 1894, authorising the compulsory repurchase of private estates, or both with the Land Laws Amendment Act, 1929, empowering the Crown to develop land and undertake farming operations pursuant to the disposal of properties as an economic unit, and this change in emphasis is readily seen. Compare also the offer of pastoral licences over waste Crown lands in 1851 with the provisions of the Soil Conservation and Rivers Control Act, 1941, the one extending the area of settlement and the other attempting to meet some of the consequences arising from unrestricted settlement.

The land legislation of the Dominion might be divided into periods based on either political or economic considerations, and both factors have been taken into account in the classification given below:—

1. **1840-1855. Initial settlement and experimentation.**
2. **1856-1876. Rapid expansion of extensive pastoral farming.**
3. **1877-1891. Depression. Increased attention to grain and meat.**
4. **1892-1911. Refrigeration and improved transport resulting in closer settlement.**
5. **1912-1935. The expansion of dairy and meat farming; the mechanisation of farming.**
6. **1936-1945. The search for security.**

The first period is overshadowed by the operations of the New Zealand Land Company. The second period concerns the land legislation of the Provincial Governments, while 1877 marks the return of land legislation to the Central Government. The fourth period, 1892-1911, embraces the Liberal Party's land legislation policies. In many cases tendencies dominating in one period continue into those that follow. The division into periods merely means that the centre of interest has shifted. Some problems continue throughout all periods. The land legislation of the Dominion cannot be properly understood without reference to the rapid development of the country entailing ever-increasing land values as overseas markets were made accessible. As a result it has been increasingly difficult for potential farmers to obtain land. The keystone to the structure of land legislation lies in the efforts of successive Governments to make land available to settlers on terms sufficiently attractive to promote and enable settlement. It still continues to be. But before proceeding to a discussion of land settlement a brief review of the Native land question is necessary.

The colonisation of New Zealand began in earnest with the simultaneous arrival of the first party of immigrants sent out by the New Zealand Land Company and the proclamation of British sovereignty as a result of the signing of the Treaty of Waitangi in 1840. Prior to this traders and settlers had bargained directly with the Maori tribes for the possession of land, to such good purpose that these claims when they later came to be investigated were found to amount to more than the entire estimated area of the Colony. Most of these claims were the result of land speculation by adventurers in the years 1837-39 in anticipation of early settlement. The designs of the speculators were, however, frustrated by the Treaty of Waitangi, which guaranteed the chiefs and tribes of New Zealand the undisturbed possession of such land as they desired to retain and reserved to the Crown "the exclusive right of pre-emption over such lands as the proprietors thereof may be disposed to alienate, at such prices as may be agreed between the respective proprietors and the persons appointed by her Majesty to treat with them in that behalf." Crown grants issued to individuals and the New Zealand Land Company in respect of these old land claims totalled less than 600,000 acres.

By 1860 the Crown had acquired the whole of the South Island, with the exception of some Native reserves, but the acquisition of Native land in the North Island presented many difficulties and resulted in wars and land confiscations. It is beyond the scope of this article to deal with the chequered history of Native land acquisition complicated by the Crown's waiver of pre-emption in 1862. That would involve description of the communal ownership of land and of the measures taken to individualise Native titles. It would tell how this individualisation of titles nearly resulted in the pauperisation of the whole Maori people, but it would also tell of the later measures to effect redress of grievances and to protect the interests of existing Native owners.

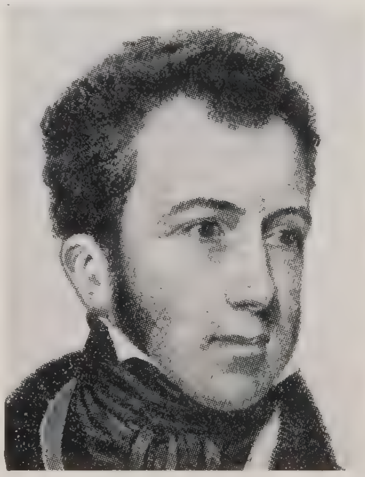
Of the 28½ million acres of the North Island the Crown has purchased 16 million acres. Native holdings approximate 4 million acres, leaving a balance of 8½ million acres purchased by private persons, more than half of this between 1870 and 1892; but whereas the sum paid for the South Island was measured only in thousands of pounds, that for the North Island was at least measured in millions.

INITIAL SETTLEMENT AND EXPERIMENTATION: 1840—1855.

The first years of this period were dominated by the New Zealand Land Company and its affiliated associations. The high hopes of Wakefield and his associates were not fully realised, and by 1853 the last of these settlements had failed. The Treaty of Waitangi, in conjunction with the Land Claims Ordinance of 1841, which provided for the appointment of a commissioner to review all existing claims before a Crown grant would be issued, had together invalidated the company's claim to 20,000,000 acres. The 283,000 acres ultimately granted the company greatly reduced the original scope of the plan. The overhead expenses of administration, buildings, and survey proved too great in view of the slow sales of land in England. The attempt to reproduce the pattern of English rural life by selling land at a price sufficiently high to prevent the aggregation of land into large holdings and to ensure that only persons of substance would be in a position to acquire land, and the attempt to combine the rural way of life with the military and cultural advantages of close settlement by selling in one lot both town and country sections were doomed to failure from the start in a land so isolated at this time from the markets of the world.

The Waste Land Regulations of 1853, which reduced the price of waste Crown lands from £1 to 5/- per acre in an endeavour to attract immigrants and provide land for settlers who lacked capital, was but the final blow which crippled the Canterbury Association, the last surviving offspring of the New Zealand Land Company, for already the licensed practice of squatting on waste Crown lands had opened up a way of life with far greater possibilities than that provided by the subsistence farming of the company settlers. The Waste Land Regulations of 1853 merely hastened the inevitable failure of the company's operations. In addition they directly encouraged that land aggregation which Wakefield, as a result of his experience in Australia, had so strenuously attempted to avoid. The licensing of Crown lands for pastoral purposes dates from 1849. Previously pastoralists such as Weld, later to become Premier of New Zealand, had taken the law into their own hands and by arrangement with the Maori owners had turned their sheep to graze on the unimproved unfenced pastures of the open tussock grasslands of the Wairarapa, Marlborough, Canterbury, and Otago. Crown Lands Ordinances of 1849 and 1851 offered pastoral licences tenable for 14 years, provided the land were not required for settlement or did not become included within the boundaries of any hundred (administrative area). An annual licence fee, based on the stocking capacity of the run, of £5 for the first 5,000 sheep and £1 for every additional 1,000 sheep and an annual assessment of 1d. per head of sheep and 6d. per head of cattle were required from the initial applicants. Runholders who were officially limited to a run of 50,000 acres (i) were to be given every facility for buying a homestead area of 80 acres. Homestead rights were later to become the subject of much heated controversy and were used as a means of hindering settlement.

THE form of the initial settlement of New Zealand was largely the result of the ideas and efforts of Edward Gibbon Wakefield. He was instrumental in bringing to life the New Zealand Land Company, which founded settlements at Wellington, Wanganui, New Plymouth, Nelson, and, in conjunction with ecclesiastical associations, Canterbury and Otago. Wakefield aimed at recreating the most worthy aspects of English rural life. Careful choice of immigrants, which resulted in a fine type of settler, and prices for land that would prevent land aggregation were part of this scheme. Marx labelled him the foremost political economist of the age.



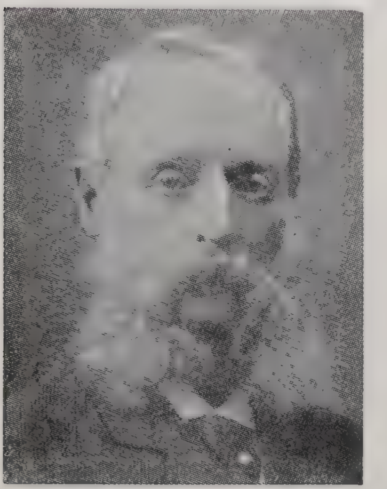
EDWARD GIBBON WAKEFIELD

By 1855, the first stage in the development of the wool trade, the occupation of the land had made considerable progress. Over three million acres of the most accessible land in the country, but particularly in the South Island, had gone into freehold, while pastoral licences had been taken out over all the remaining area of Canterbury up to and including the first range of foothills. In the next few years the process was repeated in Otago, and all that remained to be done was stocking, which legislation attempted to encourage by making the tenure of licences conditional upon satisfactory progress in increase of stock. In 1856 there were still less than one million sheep in the whole Colony.

THE RAPID EXPANSION OF EXTENSIVE PASTORAL FARMING: 1856—1876.

Difficulties of communication rendered it necessary to decentralise administration by the establishment of provincial Governments. Consequently for the 20 years covering the rapid development of extensive pastoral farming the virtual control of land legislation and disposal passed into the hands of the 10 Provincial Councils, subject only to certain limitations and confirmation by the Governor of the Colony. An amazing variety of legislative enactments and provisions resulted. Nevertheless sufficient similarity exists to permit of a cursory summary of this legislation.

(i) 25,000 sheep at 2 acres to the sheep.



SIR FREDERICK ALOYSIUS WELD

Sir Frederick Aloysius Weld was an outstanding pioneer among the squatters who themselves pioneered the land development of New Zealand. In association with Clifford and at the same time as Bidwill, he drove the first sheep into the plains of the Wairarapa and later crossed over Cook Strait to Marlborough. He wrote an authoritative book on sheep farming. Descended from the Saxon kings of England, Weld in after life became a member of the Executive Council, Premier of New Zealand, and Governor in turn of Western Australia, Tasmania, and the Straits Settlements.

There was a general tendency on the part of the provinces to raise the reserve price of lands from the 5/- to 10/- per acre set by the Waste Land Regulations of 1853, and therefore some departure from Grey's cheap land policy, though even the £2 per acre asked in Canterbury was little enough when in some years farmers made as much as £5 per acre from a single wheat crop. In general, therefore, the gold discoveries of the sixties and the rapid pastoral development carried the South Island along without any radical alteration in methods of land disposal, except that the former precipitated an agricultural lease for small areas giving rights to purchase by a form of instalment buying.

The attention of the Councils in the South Island was centred upon the improvement of the conditions of tenure for the holders of pastoral licences. The runholders of Nelson, Marlborough, and Southland not only succeeded, in common with the pastoralists of other provinces, in obtaining greater security of tenure than the pastoral licences originally extended, but also were successful in obtaining more favourable rates for the purchase of pastoral land. In some cases because of difficulties in accurate assessment the basis of rentals was changed from stock to acreage, but even so rentals were still made to conform with the progress of stocking by periodic increase in the rate per acre.

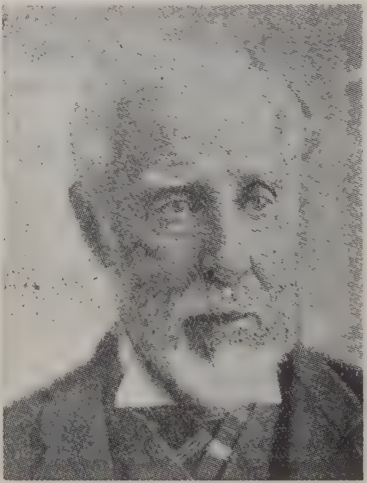
The immediate objective of the runholders was to ensure that the land they held would be reserved for their own use. In Canterbury the law was so interpreted that the granting of pre-emptive rights over the homestead area and improved parts of the run was often equivalent to a grant of the freehold, and when, because of abuses, these rights were abolished and the sale of crops prohibited, "spotting" and "grid-ironing," processes involving the actual purchase of isolated strips of land, were used to the same end. By such means agricultural land was locked up for the benefit of the pastoralists.

The question of the renewal of existing licences on expiry was met in two different ways. Some provinces, notably Canterbury, offered to renew the licence for a further term of 14 years on similar conditions but at advanced rentals, while Otago, Nelson, and Marlborough introduced pastoral leases varying in terms from 10 to 14 years and renewable for a further term, in the cases of Nelson and Marlborough at double the original rental. These leases gave greater security of tenure, so that lessees of pastoral land could not be sold out of their runs. In cases of dispossession compensation for improvements was payable.

While the Provincial Councils in the South Island were mainly concerned with legislation favouring the large runholders, the Councils of the North Island found it necessary to offer especially attractive terms to encourage immigrants and military settlers. Thus Auckland, besides making provision for special settlements of immigrants, brought out by contract with companies or individuals, authorised free grants of land to immigrants paying their own passage. Military and naval settlers also were entitled to free grants varying with rank, and participants in the Maori Wars were rewarded by the Central Government with land confiscated from the Maoris in the Waikato. Credit lands, a combination of lease and deferred payment tenure, and the deferred payment tenure proper first made their appearance in this period. Auckland introduced the former and Wellington the latter. The purchase price varied from £1 to £2 per acre, the payment of this capital value in five equal annual instalments being no more onerous than the 34½-year term of today. Three years after the abolition of credit lands in 1867 Auckland substituted the homestead system, offering a free grant from the public domain to persons who would reside on and improve their selections. Each household was limited to 250 acres of first-class land.

Leases for various special purposes made an appearance in this period. Mineral leases associated with the gold and coal mining industry are featured in the legislation of Auckland, Otago, and Nelson (including Westland). Taranaki was making an energetic attempt to develop her iron sand deposits, while Otago offered free grants of land to selectors who would plant forest trees. Land was also set aside for recreational and educational purposes.

The period ended with a land boom in Canterbury, which, as gold production declined, had become the economic centre of New Zealand on account of the suitability of Canterbury land for arable and extensive pastoral farming. From 1872 to 1878 over two million acres were sold at £2 per acre in this province alone. This land boom was bound up with the rapid extension of public works, of which the most important were railways, and with the introduction of assisted immigrants. It was accompanied by a rapidly increased overseas public debt and by an equally rapid increase in private debt mortgaged on the land. When prices fell after the bursting of the boom in 1878 the burden of debt



SIR GEORGE GREY

Twice Governor of New Zealand for long terms, Sir George Grey was recalled to New Zealand to deal with the second Maori Wars 1860-70. He inaugurated the cheap land policy in New Zealand by his Waste Land Regulations of 1853, hoping by this means to promote settlement. Pastoral licences also were first issued during his initial tenure of office.

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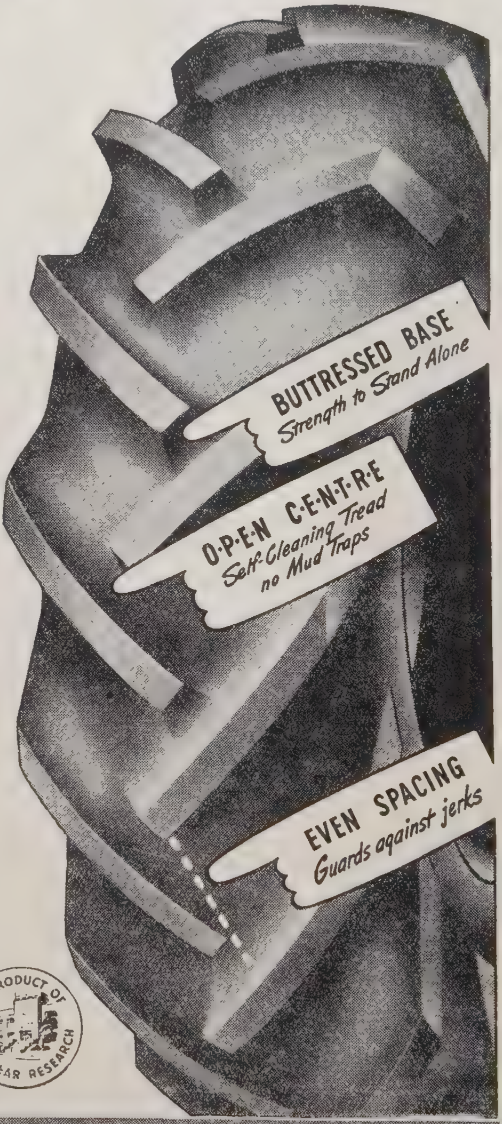

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in conjunction with labour difficulties was more than the land could carry and forced disposals of large estates led to closer settlement in later periods.

YEARS OF DEPRESSION, 1877—1891.

The year 1877 is taken as the beginning of the depression period, because that is the year when control of the disposal of the waste lands of the Crown reverted to the General Assembly, the Provincial Councils having been abolished in 1876.

The Land Act, 1877, consolidated into one Act the provisions of the Provincial Councils in so far as sales of freehold lands were concerned. Existing pastoral licences and leases were to be auctioned on expiry, the rents advertised, and the highest bidder declared the purchaser. The licence gave rights of pasturage only and held good for 10 years, later lengthened to 21 years, and then to 35 years, but was determinable if the land was required for sale as agricultural or pastoral land. The licensee might purchase only the homestead area. In the eighties attempts were made to encourage closer settlement by limiting the area that any one person might hold and by introducing the Small Grazing Run Lease in 1885. This lease gave all rights of pasturage together with any crops that might be taken off the land and provided, on account of the security it gave for improvements, a useful instrument for development of the better-class pastoral lands. Pastoral lands were offered on this tenure at an upset rental of 2½ per cent. on the capital value of the land as determined by the District Land Board for a 21-year term with right of renewal and revaluation on expiry. Land Boards for each of the 10 districts corresponding to the 10 provinces were continued by the Land Act, 1877. In the first place a limit of 5000 acres was stipulated, but this limit was later increased, provided that the land was suitable only for holding in a larger area. The new limit was 20,000 acres. Residence and improvements were required. Rapid closer settlement had to wait until refrigeration made possible the development of the dairy and meat export trade, a closer settlement assisted in turn by rising prices and advances in farm management practices.

In conjunction with these alterations in the methods of disposal of pastoral lands three other developments took place in these years. First of all the Land Act of 1877 extended the deferred payment tenure which had been previously introduced in one or two North Island provinces. The terms for rural and pastoral lands were 10 and 15 years respectively payable in half-yearly instalments. Alternatively purchase might be effected as soon as the necessary improvements had been executed. For a while minimum cash prices of £2 for rural land and £1 for pastoral land were set, but this gave way to a system whereby deferred payment land was offered at 125 per cent. of the price of cash lands. The tenure was designed to assist capital-lacking farmers to take up land. To the end that no one should hold more than one licence Land Boards were directed to draw up an alphabetical list of selectors, and further, any owner of 640 acres or of a pre-emptive right thereto was debarred from selecting. The maximum area of a rural allotment of first-class land was 320 acres, which was thought sufficient for intensive pastoral and arable farming. With the depression lasting through the eighties it was found necessary to extend this limit to 640 acres.

THE Hon. William Rolleston was Minister of Lands in 1879-84. As the very able Provincial Superintendent of Canterbury for a number of years, Rolleston met the great influx of immigrants into Canterbury in the years 1874-75 by inaugurating the village settlement system, offering temporary licences over small areas so that the immigrants might support themselves until placed in a permanent occupation. Later as Minister of Lands he introduced the first rural land Crown Lease in 1882.

HON. WILLIAM ROLLESTON

The second important development was the offer of a lease over Crown lands to those selectors who preferred this form of tenure. This Perpetual Lease introduced in 1882 was used for developing pastoral farming in the North Island. Up to 1891 only insignificant areas were taken up on this tenure in the South Island. The upset rental of the lease was 5 per cent. of the capital value of the land, which was subject to revaluation on renewal of the lease. In common with the deferred payment licence the lease entailed personal residence for 6 years and improvements within the same period to the extent of £1 per acre, in addition to cultivation (in sown grasses) of one-fifth of the area within 4 years. On fulfilment of those conditions lessees were permitted, prior to the expiry of the twelfth year of the lease, to acquire the freehold of their properties. No one was entitled to become a lessee who thereby owned or occupied more than 640 acres in the Colony. The lease provided an appropriate tenure for clearing and logging the more fertile areas of the North Island, in preparation for sowing in cultivated grasses and clovers. It was made necessary by the increased land values due to the progress of communications and settlement. In this respect it had a similar purpose to the deferred payment licence.

The last development of the period is an interesting one and concerned the extended provision of facilities for special settlement associations to take up blocks of land at the rate of not more than 150 acres per person on Perpetual Lease and 100 acres per person on deferred payments. These projects, which opened up small areas in the North Island, may have drawn inspiration from the successful special settlements of the Wellington, Hawke's Bay, and Auckland districts in the provincial period and recall the plans of Wakefield. Small farm allotments of 50 acres and village allotments of one acre, designed to provide part-time employment for seasonal farm workers or artisans, were part of these schemes, taking shape under the energetic administration of John Ballance, to relieve some of the distress prevalent in the eighties. Advances for the building of a home and for clearing the land were also made available.

The outstanding feature of the legislation of this period was the apparent desire to assist people on to the land in the face of economic depression and without uprooting those who had already become established. This in the end proved an impossible task, and compulsory repurchase of private estates had to be resorted to. Nevertheless, in attempting to grapple with the problem effective measures were taken, and, besides those mentioned above, the ballot system of choice of applicant replaced auction in 1888. Rural Crown land was thereafter offered at stated prices to applicants who were permitted to decide upon which tenure they would take up land. Minimum prices per acre of £1 for first-class and 10s. for second-class land were set.

While the years just covered are as a whole years of stagnation and distress, the development of the land made definite progress. A considerable expansion of the freehold area occurred, especially in the years following the land boom, while, with the assistance of the Perpetual Lease and Small Grazing Run, a not inconsiderable leasehold of 1¾ million acres, in addition to the 12½ million acres still held on Pastoral Licence, was taken up. By 1891 the occupied area had exceeded 30 million acres, representing three-quarters of the area occupied today. But one-half of this occupied area and the best land in the country was held in freehold, and the large estates in which much of it was held proved a resistant barrier to that closer settlement which was to be made possible by the application of refrigeration to the transportation of meat and dairy produce.

THE Right Hon. John Ballance was Minister of Lands in 1884-87. Responsible for placing many small farmers on the land through his village and special settlements during the years of depression 1884-87, Ballance also introduced the Small Grazing Run Lease for pastoral lands which could be cropped at the time (1885) when bonanza wheat farming on the virgin soil had reached its climax. The lease was used as an instrument for the subdivision of the Pastoral Licence runs in the South Island and to a limited extent for breaking in timbered hill-country land in the North Island, where, on account of Provincial Land policies encouraging pastoralists to buy the freehold, the densely-timbered land, and direct purchases from the Maori, freehold was the main tenure, corresponding to the Pastoral Licence in the South Island, used for breaking in new frontiers. Later in 1891 Ballance as Premier introduced a graduated land tax in an attempt to help break up the large estates earlier acquired.

RIGHT HON. JOHN BALLANCE

CLOSER SETTLEMENT: THE RESULT OF REFRIGERATION AND IMPROVED TRANSPORT: 1892-1911.

In the situation just described the Liberal Government, headed at first by John Ballance and on his death by Richard John Seddon, with John McKenzie as the extremely able Minister of Lands, embarked on a policy of State repurchase in order to break the deadlock that had arisen, but before doing this they took steps to see that further aggregation in the matter of remaining Crown lands was in no way encouraged. To this end the Land Act of 1892 offered the Lease in Perpetuity. This lease gave no right to the freehold; it was for a term of 999 years and the yearly rental was 4 per cent. on the cash price of the land with no provision at all for revaluation. The leases were to be administered so that no transfers in the interest of land aggregation would be sanctioned. Later when the Renewable Lease in 1907 replaced the Lease in Perpetuity the opportunity was taken to enact that no one might acquire any interest in lands alienated from the Crown, which, together with other land held, exceeded 5000 acres of third-class, 2,000 acres of second-class, or 666⅔ acres of first-class lands or their equivalent. Lessees in Perpetuity were at this time given a somewhat ambiguous right to purchase the freehold as a result of public agitation and possibly in order to create a revolving fund for the repurchase of private estates. The term of this Renewable Lease was fixed at 66 years, and like the Perpetual Lease it gave right of perpetual renewal. The rental was 4 per cent. on the cash price of the land. On renewal of the lease the capital value was subject to revaluation by an appraiser appointed by the Land Board, or, failing the tenant's agreement to such valuation, by arbitration. Lessee's improvements were to be deducted in arriving at this value. The lease permitted selectors to pay off up to 90 per cent. of the capital value of the land, the rent being proportionately reduced. This meant that farmers were able to capitalise the returns from good years and consequently reduce the burden of fixed charges, but the lease at this time gave no right to the freehold. Land not immediately productive might be let rent free for periods up to 10 years.

McKenzie in 1892 also replaced the deferred payment licence with a licence to occupy with right of purchase. This licence gave right of occupation for 25 years at a 5 per cent. rental, and it was not until the selector had been in occupation for at least 10 years that he was given the opportunity of acquiring the fee simple. Alternatively he might exchange to a Lease in Perpetuity. The tenure did away with the necessity of heavy overhead expenses immediately on taking up the land followed by possible mortgage or forfeiture, which the deferred payment tenure often involved. It was an ingenious attempt to prevent land passing to mortgagees.

SIR JOHN McKenzie was Minister of Lands in 1891-1900. "Son of a tenant farmer, born and educated in a part of Scotland from which he saw cotters and small farmers cleared out of their homes to provide deer-forests and grouse-moors for wealthy strangers, he brought to New Zealand a hatred of the selfishness of the large landowner which he never forgot." Although the Provincial legislation regulating the disposal of rural lands by auction had been finally replaced in 1888 by a system of classified disposal by ballot at stated prices, McKenzie with his Land Act, 1892, gave New Zealand for the first time an Act under which all the Crown lands of the colony would be uniformly administered. He attempted to conserve Crown lands with a lease giving no right to the freehold. However, this Lease in Perpetuity was the result of a compromise with opposition interests. Originally he had wished to introduce a lease providing for periodic revaluation. He initiated the programme of closer settlement, but when, as a result of the severe winter of 1895, he found that the high-country pastoralists were in genuine distress, he also extended to them a helping hand. State advances to settlers also date from his administration.

SIR JOHN McKENZIE

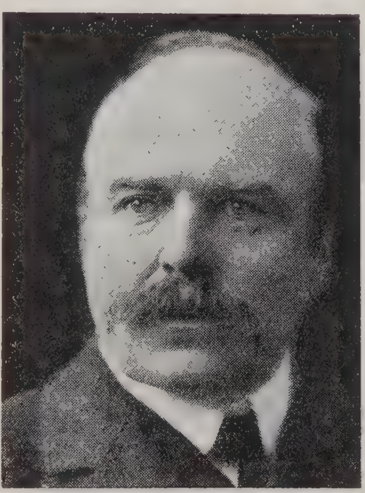
Owing to the continued fall in export prices and in the volume of public works, unemployment in the early nineties still constituted an intransigent problem. The Improved Farm Settlement Act of 1894 attempted to alleviate the distress by setting aside land for clearing and settlement. Selectors who took up virgin land were advanced the cost of converting forest into grass land or alternatively the land might be first cleared at Government expense and then ballotted for among the applicants. Another Act of some interest passed in those years was the Bush and Swamp Lands Act, 1903, which gave relief from rates and rents to persons who took up bush and swamp lands. With only inaccessible and poorer lands now remaining, it was necessary to afford some measure of financial assistance to enable selectors to bring these lands into production.

But the problem of finding land or settlers was met not only by facilitating settlement in the backblocks; it was met in addition by the compulsory repurchase of freehold estates (i). The first move in this connection was the Lands for Settlement Act, 1892, but it was not until 1894 that the Government assumed the right of compulsory repurchase, paying compensation to the owners at a rate assessed by the Compensation Court. Land might be taken from any holding exceeding a statutory maximum area. After 1909 this maximum was 400 acres of first-class land, 1,000 acres of second-class, and 2,500 acres of third-class land. Near the main centres these limits were considerably reduced. Until 1907 the lands so acquired were disposed of on Lease in Perpetuity at an annual rental of 5 per cent. on the capital costs of acquisition, development, and subdivision, or in the case of pastoral lands on the Small Grazing Run Lease, but after 1907 the Renewable Lease with terms of 33 years and a maximum rental of 4½ per cent. per annum was substituted for both. Preference at ballots was to be given to landless applicants, and, excepting pastoral lands, no allotment was to exceed 320 acres and only one such might be held.

The efforts of what was now the Seddon Ministry to assist settlers did not end with the operations of the Land for Settlement Acts. In 1894 the Advances to Settlers Act offered loans of from £25 to £2,500 to farmers by way of mortgage on land and bill of sale over chattels from a State lending agency. This was the start of the State Advances Corporation. The costs of improving pastures and maintaining soil fertility in addition to acquiring land and livestock could no longer be met without capital assistance.

But in order to establish an independent class of small farmers on the land, both New Zealand and overseas experience in new countries stresses the importance of preventing or hindering land speculation and of placing hindrances in the way of the speculator. This undercurrent runs through much of the legislation of this period. Accordingly improvement conditions were applied to all Crown lands, including those sold for cash. Cash lands had to be improved to the extent of £1 per acre for first-class lands and 10s. per acre for second-class lands within 7 years. Residence for periods up to 10 years was required on Crown leases and continuous residence in the case of Settlement lands. Gradually it became a condition attached to leases that those who disposed of their holdings were not eligible to reapply for a Crown lease until after the expiry of a time limit increased in stages to 10 years.

MINISTER of Lands in 1906-08, the Hon. Robert McNab was the author of the modern Renewable Lease, which replaced the Lease in Perpetuity and which, unlike the latter, allowed for



HON. ROBERT McNAB.

revaluation, thus securing to the Crown future unearned increment. This lease permitted farmers to acquire an equity in their lease, but originally gave no right of outright purchase.

Two other features stand out from the legislation of the years 1891 to 1911: the increasing awareness of the necessity for providing adequate public reservations and protecting scenic beauties and the increasing importance of the coal mining industry as indicated in the introduction of two mining districts leases, the one, the Mining Districts Land Occupation Lease providing for small areas of up to 100 acres suitable for agricultural and horticultural leases, the other, the Pastoral Lease in Mining Districts offering leases of up to 1,000 acres for pastoral purposes at low minimum rentals.

By 1911, due to an expansion of four million acres on freehold and over four and a-half million acres of State leasehold, including Pastoral Licence, the occupied area of the Dominion was much as it is today. The expansion of the freehold area occurred almost entirely in the North Island, where it has always been the most important tenure. From this time on the interest passes from the extension of the boundaries of settlement to the more intensive working of those areas already in occupation, associated with the rapid expansion of the dairy and meat trade.

THE EXPANSION OF THE MEAT AND DAIRY INDUSTRIES AND THE MECHANISATION OF FARMING: 1912-1935.

After 1900 world prices and therefore the export prices of New Zealand primary produce began to rise. Under these favourable circumstances, with the burden of overhead charges lightened and with rising outputs and an increase in net returns, those small farmers who had become established on Crown and Settlement Lands were soon agitating for the right to acquire the freehold of their properties, for this meant that they would not only be able to find an outlet for the investment of part of their incomes, with added security for themselves and their families in the shape of an equity in the farm, but, perhaps even more important, that they would be able to reap the benefits of rising land values due to the improved conditions and also to improving transport facilities. In deference to these wishes the Governments of W. F. Massey and J. G. Coates extended the right of freehold to all those Crown and Settlement land lessees who did not already have this right, and on very liberal terms. In the standard case, first of all the difference between the original capital value and the present capital value less improvements was computed. This difference was treated as though payable on the expiry of the lease, and to obtain the present value it was discounted at 5 per cent. interest for whatever number of years remained to the lease, and then "the amount ascertained by such actuarial computation to be added to the original capital value and the result to be the price." Further, that tenure, the Occupation with Right of Purchase which led up to the ultimate acquisition of the freehold, was replaced in 1926 by a deferred payment licence with payments in half-yearly instalments in table form varying up to terms of 34½ years, and licensees were given the right of paying off at any time. Interest was made payable on the unpaid balance of purchase money at 5½ per cent.

(i) In addition Ballance introduced a graduated land tax in 1891 and, except for the years 1931-36, graduated taxation of unimproved values has remained a feature of the fiscal system ever since. The present basic rate is 1d. in the £, rising by 1-8000th d. for every £1 in excess of £5000, with a maximum of 6d. in the £. There is some exemption for properties valued under £2,500.

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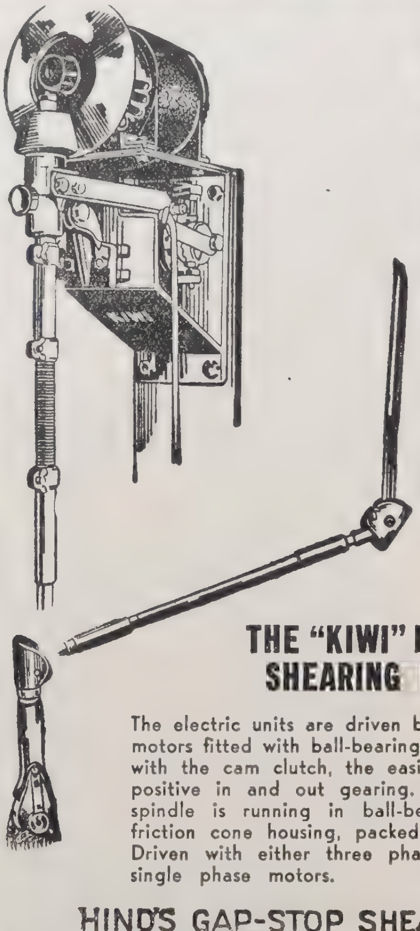

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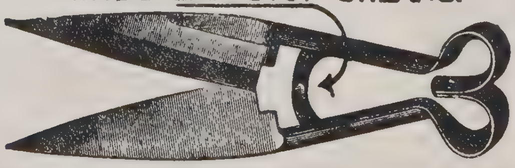

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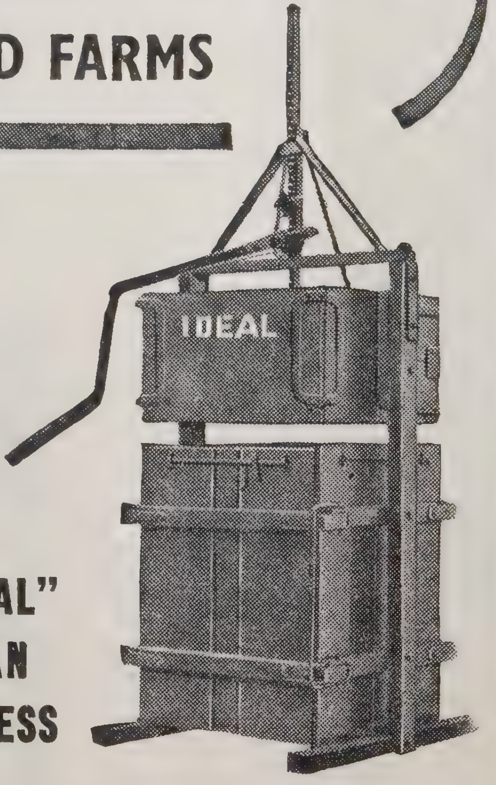

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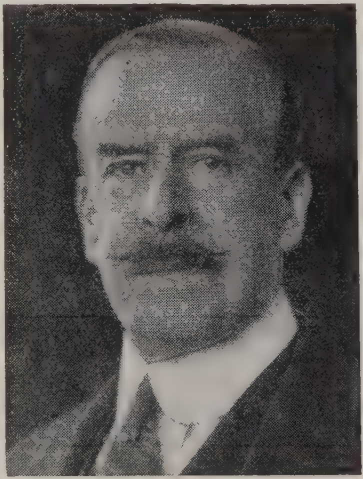
Though the State still continued to conduct operations under the Land for Settlements Act, and indeed raised the annual sum that could be used for the purposes of the Act from £600,000 in 1913 to £750,000 in 1925, the new Government showed a preference for voluntary subdivision, and in 1912 offered advances repayable from the proceeds of sale to owners who wished to subdivide. On the buyers' side in 1928 facilities were given to group applicants so that they might require Land Boards to purchase land for them after an approved agreement had been effected with the owner. The land might thereupon be taken up by the applicants either for cash or on deferred payments. Then in 1932 an Amending Act authorised loans out of the Land for Settlements account to assist the private acquisition of freehold land. Up to 90 per cent. of the purchase price of the land might be so advanced on first mortgage, whereas, through the Long-term Mortgage Branch of the Bank of New Zealand established in 1926, the bank was limited to advances on first mortgage to two-thirds only of the value of landed security.

Many special problems called for attention during this unsettled period. First the settlement of returned soldiers from the last war exercised the attention of the Administration, and vast sums were spent for the purpose of establishing many on the land. By the end of the period nearly 1½ million acres of Crown and Settlement lands had been proclaimed for the purpose, but, except for the offer of individual loans of up to £2,500 at 5 per cent. interest for the purchase of land and £750 for improvements, the conditions of tenure were much the same as for other selectors. Up to 1933-34 advances to farmers on current account and for the purchase of farms amounted to £14.7 millions. Much of the particular land involved in soldier settlement was of poor quality; it was bought at high prices and, as many of the soldier farmers were inexperienced, numbers were soon in difficulties with the collapse of the post-war boom. Therefore in 1923 Revaluation Committees were appointed to go into the financial conditions pertaining to these leases, and capital concessions to discharged servicemen, including reduction of capital values of land and mortgages, remission or postponement of rent, interest, and principal, exceeded in all £4.5 millions (i).

In chronological order the next specific problem calling for legislative attention was the question of inferior and deteriorated lands. Inferior lands were offered rent free to applicants in 1919 and might be granted in fee simple without further payment on fulfilment of improvement and residence conditions. The State would provide access, the costs to be borne by applicants, and might further make advances for the development of the land. Inferior land in large areas but not exceeding 5,000 acres without special Parliamentary authority and in no case exceeding 50,000 acres could also be offered on deferred payment to companies and persons who would develop it. This last was under the authority of the Land Laws Amendment Act, 1930. But not only was there little but inferior land now available for disposal; much of the surface-sown hill land in high-rainfall areas was also deteriorating through the invasion of secondary growth. The Deteriorated Lands Act, 1925, dealt with this problem as it affected certain hill areas in the North Island. Over-capitalisation of goodwill in leases, shortage of capital, and insufficient land were some of the causes held responsible for the difficulties of the settlers. Revaluation Committees were appointed to reduce principal and interest of Crown mortgages, remit or postpone instalments of interest on purchase money, or to remit arrears of rent. Boundaries might be altered, the holdings enlarged, the land reclassified, and advances made for fencing and the purchase of manures and other requisites.

WHILE Minister of Lands in 1908-12, Sir Joseph Ward attempted to set aside a permanent endowment of Crown lands inalienable by way of sale, the proceeds from which were to be used for old age pensions and education, but this scheme was thrown overboard by succeeding Governments.



RIGHT HON. SIR JOSEPH WARD

A further development in land legislation was precipitated by the 1929-1935 depression. Just as the special village settlements of the eighties and the Improved Farm Settlements of the nineties had met depression by special provision for the settlement of the unemployed, so the Unemployment Act, 1932, and the Small Farms Act, 1932-33, attempted to alleviate some of the phenomenal unemployment of these years. In the first place efforts were concentrated on small rural holdings of from 5 to 10 acres as a means of supplementing incomes by the production of fruit, eggs, and poultry. Share milking agreements in which the State undertook to erect cottage, milking shed, and other improvements which the owner contracted to purchase on a table mortgage, were also encouraged. But with the establishment of the Small Farms Board in 1933 the scope of the system was widened to include, in addition to the actual settlement of farmers on the land, provision for as many more as possible in the work of development. To this extent the scheme was made into an attempt to generate increased employment and business activity. For the purposes of the Small Farms Act the Minister of Lands had power to purchase stock, chattels, implements, and manures, and to carry out any expenditure incidental to general farming. With the drying up of the private sources of risk-bearing and to some extent of working capital, the State had to make these available. As the problem confronting the Legislature was not land aggregation, it is not surprising to find that a new criterion guiding repurchase activities was adopted. For the purposes of the Act land might be taken if it were considered that it was not being adequately used. Originally the lands, mostly dairy holdings, were to be let for a 10-year term at a rental of not less than 5 per cent. on the unimproved or less than 2½ per cent. on the improved value of the land, and for the first 4 years rent might be paid out of the Unemployment Fund. Rights of acquiring the freehold were given, and in 1935 rights of exchanging to a Renewable Lease with 33-year terms.

Another problem upon which attention is focused in the period under review concerns the provision of capital for farming. The contrast between the present day, with only improved farms of high capital value or unimproved lands requiring much development available, and the days when vast tracts of land were available for the extensive grazing of sheep is too vivid to need any emphasis. For a while deferred payment tenures, instalment purchase of buildings in the case of Settlement lands, and Crown leases, met the problem, but today lands become available almost solely through reoffering or only after extensive development. With the decline in State repurchase activities after 1914, little

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(i) D. O. Williams in "Agricultural Organisation in N.Z.," p. 132.

CROWN LAND DEVELOPMENT

Bailey's block, Dargaville. The small farm plan development work was commenced with the Unemployment Act, 1932, and continued under the Small Farms Act, 1932-33, and subsequent amendments.

Ngakuru block, Rotorua, developed under the Land Laws Amendment Act, 1929.

land became available from that source during the period under review. Thus the need for capital had increased with only poorer lands remaining, and here too the State has helped to fill the breach. In the previous period much had already been accomplished in this connection. Land drainage schemes date from 1893, the improvements carried out by the local Land Drainage Boards being secured on the local rating capacity. The reservation of a portion of the rent from Crown leases for roading purposes dates from an even earlier period. But assistance for the development of individual farms reached a new stage with the Land Laws Amendment Act, 1929, which appointed a Lands Development Board to develop and stock Crown lands prior to sale and to make advances to tenants secured by way of mortgage over the land for the erection of buildings and other improvements and for the purchase of livestock.

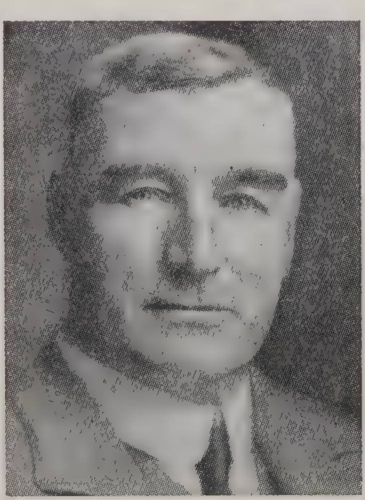
The State gave other special capital concessions following the collapse of the post-war boom in 1921-22. From that time on there is increasing reference to provisions for the extension of terms of leases and licences, as for example the deferred payment licence, and for the remission or postponement of rent, instalments, or interest on purchase money, and for the revaluation of leases. All this led up to that mortgage relief legislation of the early thirties forcibly reducing the burden of farm mortgage indebtedness, which had grown very rapidly after the last war. If the first mortgage relief legislation of 1931 was merely designed to tide farmers over a difficult period by the reduction of interest rates, remission of arrears of rent, and postponement of due date for the payment of interest and principal, it soon became apparent that, as world prices failed to give any indications of returning to previous levels, some more permanent solution on the basis of readjusted productive values would have to be found. The Rural Mortgagees Final Adjustment Act, 1934-35, therefore empowered Adjustment Commissions to effect, if possible, an agreement between mortgagors and mortgagees for the reduction of liabilities in excess of the productive value of the land. Otherwise the Commissions might put into operation a stay order for 5 years, during which the farmer was to be put on a budget, and after which, and provided the farmer satisfied the authorities that he should remain in possession, the productive capacity, on the basis of the annual average income capitalised at a basic rate of interest, was to be assessed and the liabilities reduced to this value. However, the final Act in the drama was left to the newly-elected Labour Government. The Mortgagors and Lessees Rehabilitation Act, 1936, aimed at the immediate reduction of mortgage indebtedness in excess of the basic value of the land. The basic value was determined by reference to the productive value of the land increased or decreased by such amount as was necessary to make it a fair value for the adjustment of liabilities. There were 15,621 applications for relief and 11,071 orders made. Relief was authorised to the extent of £8,533,437.

An interesting feature of the land settlement of the years 1912-1935 is the continued tendency towards closer settlement, which is revealed in the following figures:—

	No. of Holdings over 1 acre in Extent.	Occupied Area.
1891	.. 43,777	31,867,505
1910-11	.. 73,876	40,238,126
1935	.. 84,867	43,104,559

Thus, despite the fact that the area in occupation rose by less than three million acres, the number of holdings increased by nearly one-sixth after 1911. The greatest increase in numbers was of holdings in the group 50 to 200 acres. This was obviously due to the marked expansion of the dairy industry. The interesting fact is that this closer settlement continued despite a decline in State repurchase and subdivision.

THE Right Hon. George William Forbes was Minister of Lands in the Ward Ministry in 1928-30, and brought in several important amendments, the most outstanding of which was the provision of the Land Laws Amendment Act, 1929, which gave the Crown power to develop and stock undisposed Crown lands prior to sale. Land now of good carrying capacity and held by prosperous farmers was in this way broken in. This development was all the more important because high prices had severely restricted repurchase of land by the State.



RIGHT HON. GEORGE WILLIAM FORBES.

THE SEARCH FOR SECURITY: 1936-1945.

Such powerful reactions were set in motion by the depression that from 1936 on constitutes a new period marked by the desire for security of employment and money income. The chief legislation has been the introduction of the guaranteed price for dairy produce, the Soldier Settlement and Land Sales Act, the Soil Conservation and Rivers Control Act, as well as the Mortgagors and Lessees Rehabilitation Act, 1936, already described.

Another outstanding feature of the land legislation of the last few years is the continued desire of the State to bridge the gap already referred to between the capital required for taking up a farm and that usually possessed by the young applicant for one. The Small Farms Amendment Act, 1939, besides making it possible to bring Settlement land under the principal Act, provided that Small Farm lands might be offered to persons suitable for rural employment who are not in regular work and who have not sufficient capital to take up lands under the other Crown or Settlement tenures.

The reference to suitability, possibly as a result of the soldier settlement after the last war, dates from 1929 and provided that preference at ballots was to be given to applicants possessing experience or who lived near the land for disposal. The holdings are made available on Renewable Lease with terms of 33 years at a rental of 4½ per cent. on the unimproved value of the land as determined for each term of the lease. Improvements on the land are to be regarded as having been advanced to the lessee and may be secured and made repayable in such manner as the Land Settlement Board decides.

Development provisions were also made more comprehensive. The Minister of Lands was given power to construct waterworks supplying farm and domestic requirements and to levy water rates to cover capital costs and running and maintenance expenses, while a Rural Housing Act of 1939 empowered County Councils to make advances on the security of farm lands and to provide housing accommodation either for the farmer's own use or for persons employed by him. But the most important development along these lines is the Soil Conservation and Rivers Control Act. While through all legislation there has been implicit in the Acts, Ordinances, and Regulations of the Colony (and after 1907 the Dominion) the assumption that certain types of land have specialised uses, ploughable or unploughable, pastoral or agricultural, there has been too little attention paid to the place of the forest and native tussock in land utilisation and drainage, or of maintaining a good sward when the removal of the forest is in order. The Soil Conservation and Rivers Control Act, 1941, represents the first comprehensive attempt partially to restore the balance of nature and to control land utilisation. The Soil Conservation and Rivers Control Council set up by the Act has power to proclaim Soil Conservation Districts in which the lighting of fires, the destruction of plants, or any change in the use of the land may be prohibited. The use of land for agricultural or pastoral purposes may be regulated or restricted. Lands may also be set aside as Soil Conservation Reserves and private lands acquired for this purpose on terms assessed by the Compensation Court. These reserves are to be managed in the interests of soil conservation, and the lighting of fires or the trespass of animals is prohibited. The council has power to repair or divert any watercourse or to plant trees and shrubs or sow grasses and may enter any property in the execution of this work, though owners may claim for any damage. The local administration of the Act is in the hands of Catchment Boards and the Soil Conservation Committees, a majority of the former being elected at the local body elections, while the latter are appointed by the council. The boards are to regulate and control the flow of water into watercourses and maintain hydrological records. The boards have power on land acquired by them, or subject to the consent of the owners, to plant, sow, and maintain trees, shrubs, or grasses, and may make grants for the destruction of animals destroying protected vegetation. The committees are appointed to administer regulations pertaining to the Soil Conservation Districts and have power to regulate fire lighting, stocking, ploughing, or cultivation of the soil; they may require occupiers to plant or sow shrubs or grasses or to take all reasonable steps to destroy rabbits, deer, wild pigs, and wild goats. The real testing time for the effectiveness of the administration will come now that the war is over, but the success of the attempt to deal with this greatest of problems will ultimately depend quite as much on the co-operation of the farmer as on the ability and energy of the persons operating the machinery of the Act and the financial grants they receive.

Since the outbreak of war much attention has again been paid to the settlement of discharged servicemen on the land. By a 1940 amendment to the Small Farms Act discharged servicemen are to have preference at ballots. In reference to this an amendment to the Land Laws brought down in 1944 provided that any Crown or Settlement land previously offered for sale or lease by auction might now be offered by public application for sale or lease at a fixed price or rental and granted without competition to a discharged serviceman.

Two important developments took place in 1943. By the Statute Amendments of that year for any discharged serviceman who is or becomes a lessee under the Small Farms Act the rental for the first year will be 2 per cent. of the unimproved value of the land, increasing by stages to 4 per cent. commencing with the third year unless otherwise determined. Previously it had been decided that improvements on lands acquired for rehabilitation were to be secured by way of table mortgage repayable in half-yearly instalments. The rate of interest on such was 2½ per cent., rising to 4¼ per cent. commencing with the third year. The Government consented to make provision for ex-servicemen to acquire the fee simple of these lands, and this they may do at such price and on such terms as the Land Settlement Board, which administers all matters pertaining to Settlement and Small Farm lands, thinks fit. The Land Settlement Board also has power to make advances for the purchase of stock and chattels.

The other important development was the passing of the Servicemen's Settlement and Land Sales Act, 1943. This very important Act deals with two distinct though related problems, the acquisition of land for the settlement of demobilised personnel and the control of land sales. The background to this Act is provided by the present accumulation of purchasing power. Cash held by the public and demand deposits at the trading banks alone increased nearly threefold in the years 1938-44 and unexercised over-

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draft authorities by over one-half. Savings banks deposits have doubled during the war. With the demand for land for servicemen settlement, with the superabundance of purchasing power and the restricted markets in many commodities due to rationing and price control preventing the absorption of this additional money, and with the notorious sensitivity of land values to either an expectation or realisation of rising prices due largely to the war and/or to inflationary finance, it is readily appreciated that the situation in regard to land values was a highly unstable one, particularly in view of the ease with which land is transferred in New Zealand. The Torrens system of land transfer by registration in the books of the Land Transfer Office, in conjunction with careful stipulation as to survey and definition of boundaries, plans of which have to be approved by the District Chief Surveyor, gives a "practically indefeasible" title to a clearly-defined area of land and enables land to be conveyed with great ease and economy. Had inflationary speculation in land values taken place, the whole structure of the guaranteed price system would have been jeopardised, since land speculation would have increased the overhead cost in farming, necessitating a guaranteed price at least always as high as overseas prices and sometimes higher, or once more revision of capital charges.

Discharged servicemen, within the meaning of the Act, are persons normally resident in New Zealand who have at any time during the present war served outside New Zealand or on continuous service within New Zealand or on any British ship not a home trade ship. For them any land may be taken which is capable of subdivision into two or more "economic" holdings, though Native land or land belonging to personnel serving overseas is exempt. This marks the ultimate phase in compulsory repurchase provisions. But so far nearly all properties have been acquired by voluntary negotiation. The amount of compensation is assessed at the value of the claimant's estate or interest therein, which value is computed on the basic value of the land with additional compensation for any special loss arising from compulsory repurchase. The basic value of the land is determined by its productive value, which is the net annual income that can be derived from the land by the "average efficient" farmer capitalised at 4½ per cent. interest, with special allowance for any improvements greater or less than those normally required, as for example in homestead amenities, or for any special value the land may have on account of locality. The net annual income is derived from the gross annual income calculated on the basis of prices for farm products ruling in December, 1942, by deducting all expenses other than capital expenditure required in the production of such income. On land so acquired the Minister of Lands is empowered to authorise all works necessary for settlement.

The Act also controls the sale and transfer of all freehold estate and interest or leasehold estate or interest, other than Crown lands, with at least three years to run. In considering whether or not to grant a request for transfer the Land Sales Committee or the Court appointed by the Act is required to have regard to the desirability of the land for the purpose of settlement by ex-servicemen and the desirability also of preventing undue increase in the price of land or undue land aggregation through which potential farmers are denied the opportunity of obtaining land. With reference to the desirability of preventing the use of land for speculative or "uneconomic" purposes the committees are directed to have particular regard to the relation of the amount of purchase money to that paid in any previous transactions, and no application will be entertained if the consideration exceeds the basic value or basic rent of the land as determined by the committee. The suitability of the purchaser or lessee having regard to the proposed use of the land is taken into consideration; then, if the committee decides that any lands under transaction are suitable for the placement of discharged servicemen, it may make an order determining the basic value of such land, and the Minister by notice within one month in the Gazette may declare the land taken for the settlement of discharged servicemen. The Act became operative in October, 1943, and expires 5 years after the termination of the war.

Conclusion

The following is the present position in regard to lands disposal in the Dominion.

	1944 (acres)
Area granted or sold and held on freehold	22.174.813
Reserved for public purposes ..	16,473,398
Crown lands leased exclusive of reserves	16,136,777
Area of Crown lands available for disposal	1,975,136*
Native land	4,492,161†
Unfit for settlement	5,138,372
	66,390,657

*Mostly unfit for settlement.

†Includes certain areas alienated by sale to Europeans.

Of the occupied area of approximately 43 million acres approximately one half is freehold and the other leasehold of various kinds:

	1942 (acres)
Freehold	21,689,218
Leasehold	21,308,182
	42,997,400

Crown leases, more than half pastoral leases and licences, represent between 75 and 80 per cent. of the total leasehold area. The proportion of the leasehold to freehold is naturally highest in sheep-farming areas, where the Pastoral Licence and Small Grazing Run Lease are very important, and, though many farms are mixed leasehold and freehold, the proportion of freehold to leasehold generally increases as the farming becomes more intensive and the outlay for land as a proportion of total capital required declines. This is so even though sheep-farming lands are generally of poorer quality. But the high proportion of leasehold in sheep-farming areas may be partly due to the attractive terms on which Pastoral Licences have been offered, in comparison with the terms upon which the land could be bought as freehold.

Of the 43 million acres in occupation approximately 20 million acres are improved; of this improved area 90 per cent. is in the form of sown grasses, and approximately 23 million acres are unimproved. The great bulk of this improved land is undoubtedly freehold land.

The relative importance of the main Crown leases still held is shown below as at March 31, 1942:—

	Selectors.	Area.	Yearly Rent and Instalments.
Deferred payment ..	3.554	614,497	£102,616
Lease in Perpetuity	6,937	1,432,066	£160,400 (replaced by the Renewable Lease 1907)
Renewable Lease ..	9,492	2,665,761	£357,864
Small grazing runs..	757	2,450 203	£87,977
Pastoral runs ..	593	8,112,322	£77,830

In the immediate future the main activities in land settlement will undoubtedly be devoted to the rehabilitation of returned servicemen. When this work is over, given the success of policies designed to maintain and extend living standards at home and overseas and approximately present levels of relative prices, there will still be scope for settlement, both through the subdivision of existing holdings on the more fertile areas, and by the development of the somewhat limited areas of the remaining Crown lands suitable for dairying and other types of intensive grassland farming, though areas associated with soil depletion or danger of flooding may have to be abandoned.

MAIZE FOR FEED.

In view of the need for home-grown feed crops, maize is of vital importance. Full cultural details are given in Bulletin No. 236, "Maize," which is obtainable free from offices of the Department of Agriculture.

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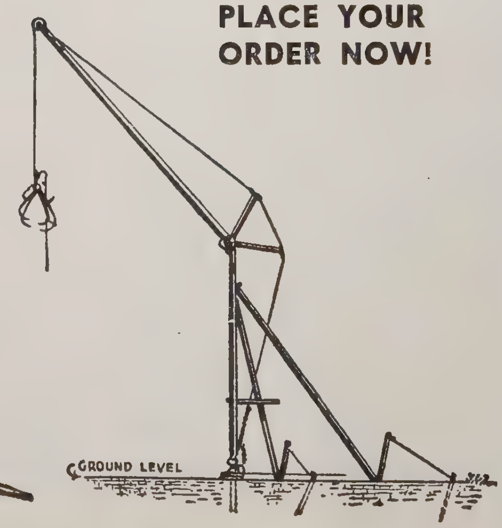

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Pick-up Hive and Honey Barrow

THE lifting of heavy supers of honey from the hive on to the apiary truck, and from the truck into the honey-house at extracting time, also the lifting of full colonies of bees when moving apiaries or re-arranging hives, is heavy work, and any reliable device which would make the work easier and reduce the time taken to a minimum should be welcome to beekeepers. In recent years the use of various types of hand trucks, trolleys, and barrows has considerably reduced the amount of lifting in many modern honey-houses to a minimum.

Little headway has been made, however, in easing the work of the beekeeper in the apiary itself. The barrow (or carrier) illustrated in this article as used by Mr. Wm. Adamson, of Wedderburn, is especially useful in the handling of honey supers and hives. One of the barrow's main features is that it will pick up three supers of honey or a complete three-storey hive from ground level in a single operation, and, with the use of a suitable ramp, load them right on to the apiary truck, and also assist to unload them with no actual lifting on the part of the operator.

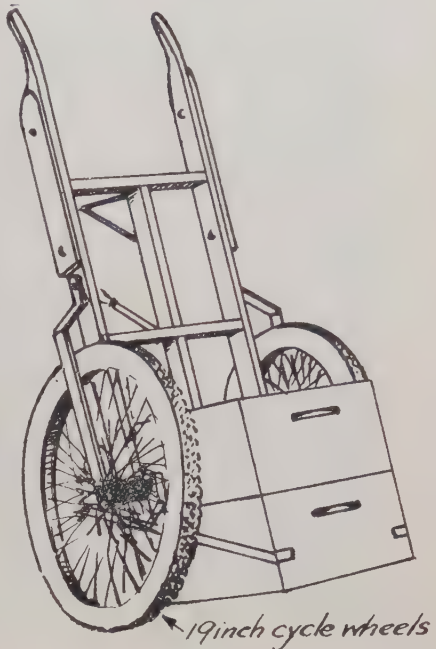
The barrow is made from a pair of motor cycle wheels carrying a flat wooden framework, with the usual barrow shafts. The picking up operation is achieved by the grasping action of the two arms which protrude in front, which open readily when the lever on the back of the barrow is pressed, and spring together when the lever is released, and so embrace the bottom super.

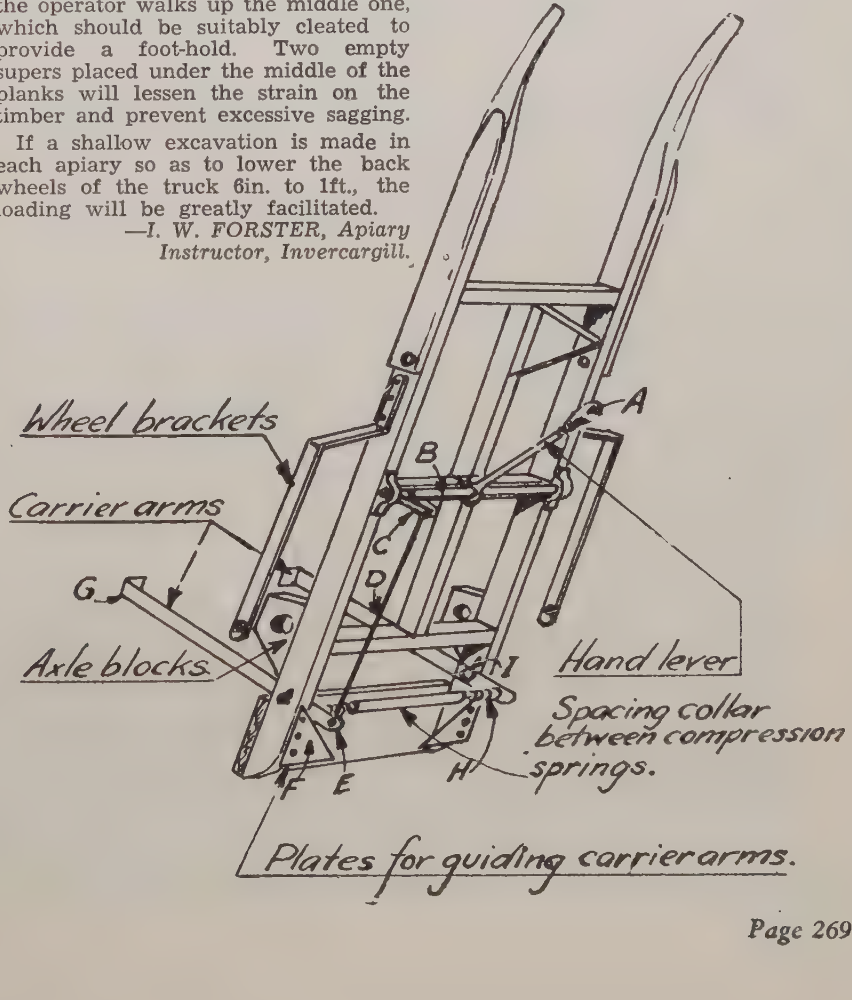
To load the barrow the shafts are held in a vertical position, the arms are opened by pressing the back lever, and the barrow is pushed hard up to the supers or hive to be moved. The lever is then released and the arms close around the bottom super. By bringing the shafts down to a horizontal position the load may be wheeled where required.

When using the barrow to load on to a truck, it will be necessary to have three planks of 9in. x 2in. timber about 10ft. long, which can be placed from the ground to the tail of the truck, spaced so that the outside planks will each carry a wheel, while the operator walks up the middle one, which should be suitably cleated to provide a foot-hold. Two empty supers placed under the middle of the planks will lessen the strain on the timber and prevent excessive sagging.

If a shallow excavation is made in each apiary so as to lower the back wheels of the truck 6in. to 1ft., the loading will be greatly facilitated.

—*I. W. FORSTER, Apiary Instructor, Invercargill.*

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Cocksfoot Seed Production

NEW Zealand cocksfoot is well known and liked in Britain, where land intensively cropped for wartime production must be regularly reseeded to pasture if crop yields are to be maintained. There is also a tendency there to establish a longer-lived pasture, which strengthens the claim of New Zealand cocksfoot for inclusion in the mixture. The writer of this article, a New Zealand agriculturist seconded to the British Ministry of Agriculture during the war, discusses factors, particularly of price and purity, which will influence the market prospects of New Zealand cocksfoot seed in Britain, and cites British methods of seed production in urging higher yields and more extensive growing to procure greater purity and cheaper production.

By

G. S. ROBINSON,
Instructor in Agriculture,
Masterton.

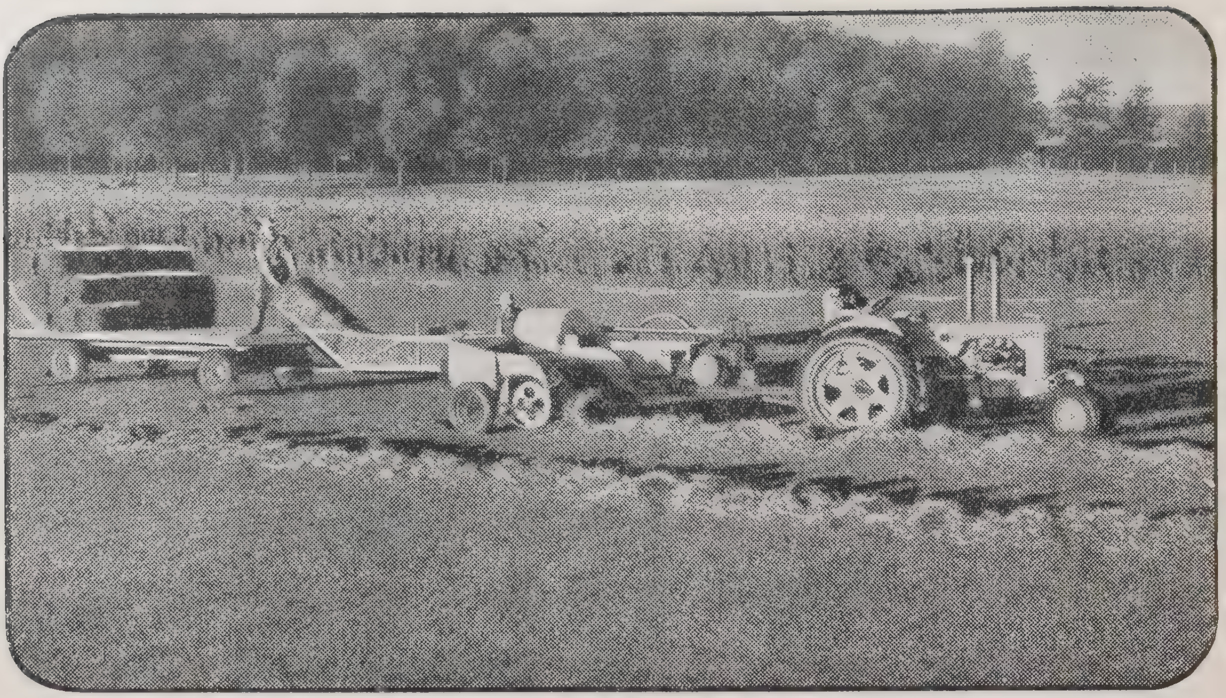
Cutting a heavy crop of cocksfoot which yielded 600lb. of machine-dressed seed per acre.

THAT the New Zealand Certified strain of cocksfoot was unsurpassed in quality by any other known strain, but that the purity of New Zealand lines left much to be desired, was pointed out in the January, 1942, issue of the "Journal of Agriculture." The effect of the lower purity is not very apparent to the growers of the seed or to those who use it in mixtures in New Zealand, because there is very little available of much higher purity than the 70 per cent. minimum allowed for Certified seed. But when our cocksfoot seed is exported to Great Britain the strain suffers disadvantageously, despite its high quality, in comparison with English-grown seed and other imported seed, which often have purities of over 90 per cent.

British Requirements

Since 1939 millions of acres of pastures in Great Britain have been ploughed and cropped in order to provide as much as possible of the nation's food supply from home-grown sources. Food shortages in Europe are not at an end yet, and in order to maintain her present rations Britain must also maintain her agriculture at the same high standard. Besides maintaining the acreage under the plough, the yield per acre must also not be allowed to slip. This certainly would occur if the same land were cropped continuously, even if ample fertilisers were available. The policy recommended by the Ministry of Agriculture and followed by good farmers is that land which has carried three, four, or five crops and has reached the stage where further cropping would result in reduced yields should be seeded down to pasture and an equivalent acreage of old pasture ploughed in its place. In many parts of Britain, especially in the good arable areas, it has been the custom to sow a temporary pasture of one year's duration every four or five years, and although this is still done over a big area, the general tendency now is to extend the life of the pasture to perhaps three

Cocksfoot grown for seed production in Southland.



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or four years. This is especially so over the bulk of the country where the tillage acreage of the farm is under 60 per cent. of the total area of the farm.

Before the war most seed mixtures contained only perennial and Italian ryegrasses with red clover. A typical one would be as follows:—

6lb. perennial ryegrass.
8lb. Italian ryegrass.
10lb. broad red clover.
—
24lb. per acre.
—

Such a mixture established well under a cover crop usually of barley or oats, gave probably two good cuts of hay in the following year, and at the same time the clover roots helped to restore the fertility of the land. But at the end of that year the pasture had practically run out and was ploughed again for cropping.

At the present time the aim is to obtain a pasture of say three years' duration, and it is therefore necessary to sow a mixture of greater variety than the above. Species that will contribute to the production from the pasture in the third year are just as important as the quicker-establishing but shorter-lived species. The result has been the greater use of cocksfoot and timothy among the grasses and of white clover and late-flowering red clover among the clovers. A typical seeds mixture on average type land for a three years' pasture would be as follows:—

5lb. Italian ryegrass.
15lb. perennial ryegrass.
6lb. cocksfoot.
2lb. white clover.
3lb. late-flowering red clover.
—
31lb. per acre.
—

On the damper soils timothy would replace cocksfoot.

Even at the present time, when there is no suggestion in Britain of a "back-to-grass" policy, there are hundreds of thousands of acres of land to be seeded down each year. If, as is likely at some future date, the tillage acreage is to be reduced from its present somewhat top-heavy position, there will be a greater area still to be sown to pastures requiring the inclusion of cocksfoot and timothy.

The writer's experience of the behaviour in Britain of New Zealand Certified cocksfoot bears out the opinions of previous observers. During the war supplies from other countries have been either cut off or reduced, and many more farmers in Britain have used New Zealand Certified cocksfoot and will want to continue using it. There are two main considerations that will govern whether they do so.

1. Price:

There is no doubt that cheap cocksfoot seed will again be available from Denmark, perhaps in the not very far distant future. Although there is no comparison in the quality of Danish cocksfoot and ours, the price very probably will decide which becomes the more popular.

If we can produce cocksfoot and put it on the English market at prices not very much greater than Danish, our market will be much more secure. This cheapness in price must not be obtained by reducing the margin of profit to the grower, but rather by cheaper and improved methods of production, thereby increasing yields.

Some suggestions in this regard are given later in this article.

2. Purity:

More and more farmers are now buying their seed on a basis of purity and germination. Merchants, too, prefer to stock seed of high purity, and as it is they who largely govern what farmers use, it is up to us to provide a product of high grade in this respect. There seems to be a tendency, as explained by J. H. Claridge in the "Journal of Agriculture" for January, 1942, for the younger crops to produce seed of higher purity. There is no doubt, at any rate, that this is the case in regard to the presence of other species. Young crops, too, can be expected to produce bigger yields of seed per acre. Purity may also be dependent on the time of harvesting the seed. Too early harvesting is bound to increase the percentage of empty glumes.

Heavier Yields Necessary

Although cocksfoot seed production has not been a major activity in British farming, it has been stepped up considerably during the war years, and there may be some lessons to be learnt from British methods. The type of cocksfoot being grown, which is very similar to New Zealand Certified, was selected and bred at the Welsh Plant Breeding Station by Sir George Stapledon. Like ours, and opposed to the stemmy Danish type, it tends to produce leaf rather than stem, and is also a shy seeder. However, it has been found that when sown in drills about 21in. apart it produces a much greater yield of seed. Up to 10cwt. of machine-dressed seed per acre have been produced by this method. There is no reason to doubt that the New Zealand type would respond to this method in a similar way, and would give much higher yields and better seed purity with comparatively little extra cultivation cost. The first essential, whether cocksfoot is being sown broadcast or in drills for seed production, is to have the paddock clean and free from ryegrass. If this is the case, there would be no need for more than two horse hoeings in the seeding year. Provided they get a good start, the plants soon meet across the drills and prevent the ingress of weeds. In following years a deep inter-row cultivation would be necessary after harvesting the seed crop. To obtain highest yields it is advisable, as with broadcast crops, to graze the cocksfoot only for a short period in the autumn, if at all. On the other side of the ledger is the fact that only 5lb. of seed per acre need be sown in drills, as against 12 to 20lb. broadcast with 2 to 4lb. of white clover. This represents a saving of from £2 to £4 per acre at present prices of Certified Pedigree seed.

The high yields obtained by English growers are partly due to the liberal use of nitrogenous fertilisers. Cocksfoot is a greedy plant, and seed crops take a great deal of nitrogen from the soil. Under conditions and prices in Britain up to 2cwt. of sulphate of ammonia is applied following harvest and up to 6cwt. in the spring. This gives payable yields, but under our conditions the quantities required would have to be ascertained. It may be suggested that this heavy application would tend to rob the soil, but that can easily be remedied by ploughing after, say, four seed crops have been taken (by which time the vigour of the stand will be deteriorating)

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and cropping with rape or roots to be fed off on the paddock. It is essential at the same time to give the crop annual topdressings of phosphate and also potash if necessary.

Type of Land

Cocksfoot demands land of good fertility, either natural or induced, and grows best on well-drained soils. Light soils are admirable for seed production, providing there is a good spring and early summer rainfall. On heavy land of good fertility weeds and ryegrass tend to come in rather earlier. Although cocksfoot has been grown for seed production practically solely in the South Island, there are many parts of the North Island which would suit it very well, e.g., the Wairarapa and the Manawatu.

Management

Cocksfoot is a fairly safe crop to grow. Once established, the management is relatively simple. Harvesting is not difficult. The crop should be cut with the binder and stooked for about 10 days. Threshing from the stook saves the labour of stacking, but should be done only on bright, sunny days. Direct heading of the crop has been tried in England, and while it has been successful in some instances, inclement weather is liable to cause losses, as the seed sheds very easily if allowed to get to the stage fit for heading. Once, however, the seed is in stook, and provided the sheaves are small and carefully stooked, there should be little loss of seed.

Summary

1. **New Zealand cocksfoot is well known and liked by British farmers. Although the quality is good, there is room for improvement in the purity of the seed.**
2. **Britain's farming policy means that more cocksfoot will be required in the future. Although other supplies may now become available, New Zealand Certified is unsurpassed in type.**
3. **In order to increase exports of New Zealand cocksfoot, the price must be kept in line with that from other countries.**
4. **Seed can be produced more economically if heavy yields are obtained. British experience in cocksfoot seed production may help in this respect.**
5. **Heavy yields also give better purity.**
6. **Cocksfoot seed production could be extended to cover parts of the Wairarapa and Manawatu.**

◆

NEW ZEALAND WOOL LINCOLN.
NEW ZEALAND WOOL ROMNEY MARSH
NEW ZEALAND WOOL CROSSBRED.
NEW ZEALAND WOOL HALF-BRED
NEW ZEALAND WOOL SOUTHDOWN
NEW ZEALAND WOOL MERINO.
NEW ZEALAND WOOL CORRIEDALE.
NEW ZEALAND WOOL RYELAND.
NEW ZEALAND WOOL BORDER LEICESTER.
NEW ZEALAND WOOL ENGLISH LEICESTER.

THE New Zealand WOOL INDUSTRY

IT was estimated that there were 755,400,000 sheep in the world in 1938-39, of which almost half were non-woolled or bore very light fleeces, so that the total of world wool production was 3,990,500,000lb. The average fleece weight was only 5.3lb. per head. Of this quantity of wool it was estimated that approximately 40 per cent. was of Merino type, 35 per cent. of Crossbred type, and the remaining 25 per cent. Carpet wool. The tables below show that New Zealand ranks seventh on the list for number of sheep, fourth as a wool-producer, and third as an exporter of wool, the United States consuming most of her own clip.

By J. E. DUNCAN, *Wool Supervisor, Livestock Division, Wellington.*

AS it is impossible at present to get complete and up-to-date statistics for any branch of sheep or wool production, it is unfortunately necessary to rely on pre-war figures in the tables.

TABLE 1—SHEEP NUMBERS, 1938-39.

Country.	Number. (In millions).
Australia	110.5
Russia	84.5
United States of America	52.7
India	50.0
Argentina	45.9
South Africa	40.5
New Zealand	31.9 (33.1 for 1943-44)
United Kingdom ..	26.3
China	20.9
Uruguay	17.9 (1937-38)

TABLE 2—WOOL PRODUCTION, 1938-39.

Country.	Weight. (In millions of lb.)
Australia	985.0
United States of America	425.7
Argentina	394.0
New Zealand	329.0 (330.0 for 1943-44)
Russia	303.0
South Africa	264.0
Uruguay	125.4
United Kingdom	110.0

New Zealand's specialty is the production and export of Crossbred wool, the only serious competitors in this field being Argentina and Uruguay. During the war this type of wool has been in great demand for uniforms, because of its strength and durability.

In the 10-year period 1930-39 an average of 64.4 per cent. of New Zealand's exports of wool went to the United Kingdom. An unspecified amount of this was subsequently re-exported, but Britain has always been our best market. France, Japan, the United States, and Germany were our other main customers, but the relative importance of their buying fluctuated a great deal from year to year. Since the outbreak of war Britain has bought the whole of our wool clip each year, and this arrangement is to continue for the duration and at least one season thereafter.

Wool statistics are notoriously unsatisfactory, both in their methods of presentation and in their shortcomings. In general, they leave us in a position to make little better than an educated guess as to who the ultimate consumers of our wool are, or to what precise use they put it in their mills and factories. Without more adequate information we are not in a position to cater for the wants of quite a large proportion of our customers, and are consequently groping ahead rather blindly in our trends of production. Wool-growers and wool-users tend to be separated by great distances, and there is little liaison between them. Their knowledge of each other's problems is usually small, and frequently distorted. Growers have become wary of the advice given by buyers—in many cases justly so, for most buyers are interested only in particular types of wool, and their advice is biased accordingly. It is to be hoped that after the war some responsible body, such as the International Wool Secretariat, will take active steps to interpret the requirements of the manufacturer to the grower of the wool, and conversely make plain to the manufacturer some of the producer's problems.

Development of Industry

The wool industry has steadily evolved and expanded from the earliest days of settlement, and today wool is one of our major items of export. Since first settlement wool has contributed more to the revenue of this country than any other single product, and the aggregate value to date reaches the enormous figure of approximately £600,000,000.

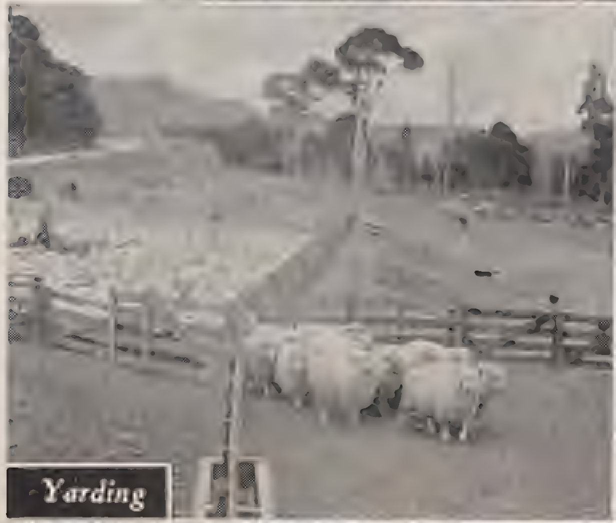
Although development has been more or less steady and progressive, it is convenient to observe it under several periods, and those which best lend themselves for the purpose are:

(i) From first settlement till 1916.
(ii) From 1916-1920—generally referred to as the "commandeer" period.
(iii) From 1920-1939—the post-war period.
(iv) From 1939 until the present—which can be called the "appraisement" period.

(i) 1835-1916:

The first record of wool being exported from this country is of a few bags of Merino wool being sent from Mana Island in 1835 to Sydney for

PREPARING WOOL CLIP ON FARM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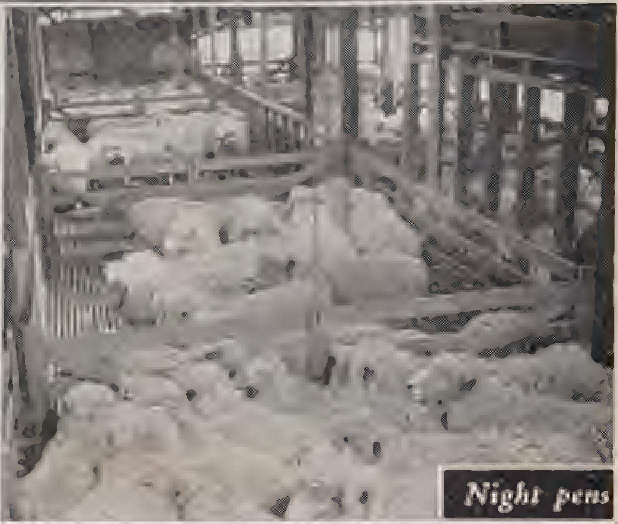
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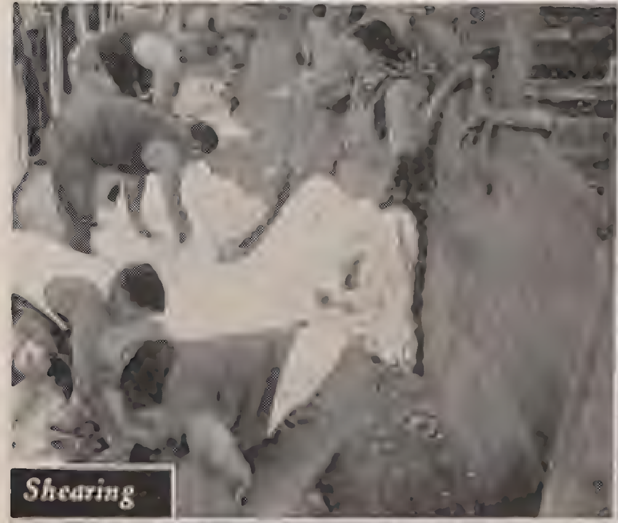
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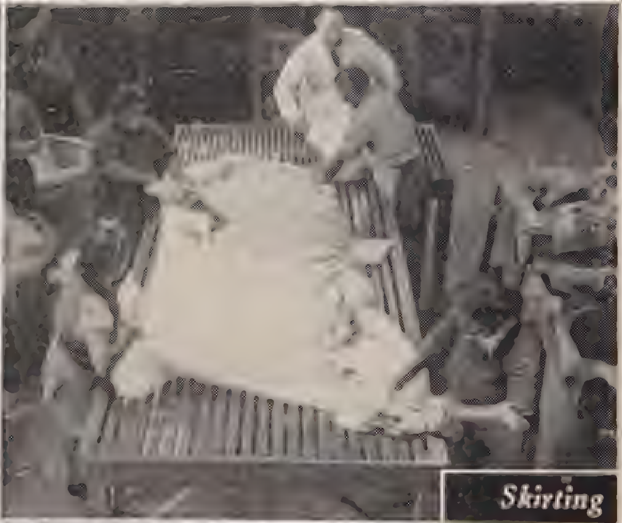
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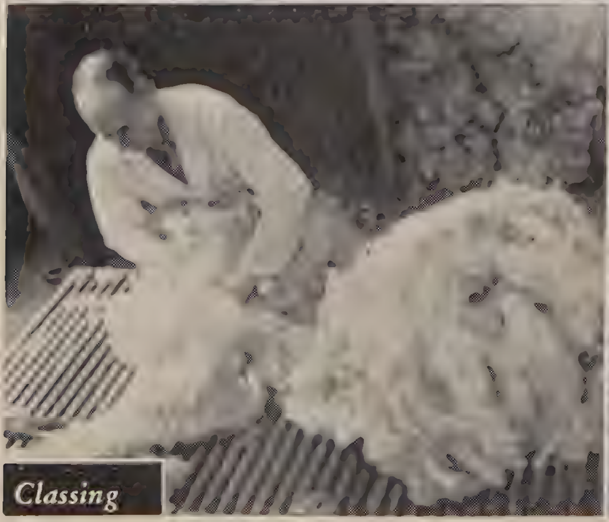
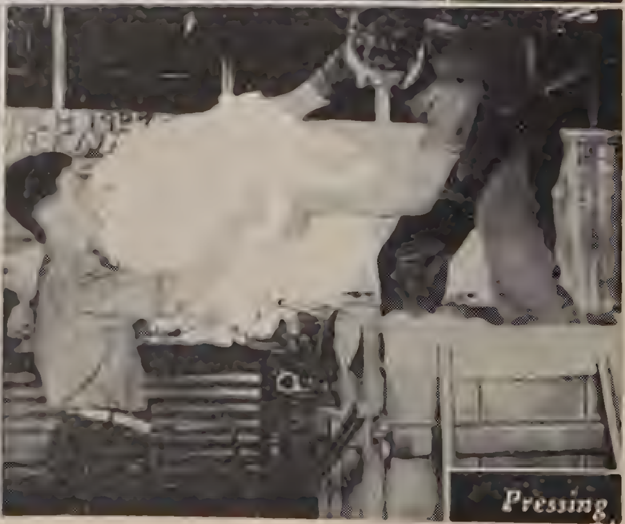

Classing


Pressing

sale. As the sheep population expanded, the regular thing was to send wool and tallow direct to Britain for sale, and the first local auction sales were not held until about 1866. This practice rapidly expanded, as the farmers felt they had a better chance of obtaining ruling market values by this method than by private treaty. As the quantity of wool offered and the importance of the local market increased, large overseas manufacturers found it worth their while to send their buyers to obtain wool at first hand at the New Zealand wool auctions—although many farmers still preferred to ship their wool direct to London and sell it there by auction—claiming that this practice paid them better in the long run. Some of the larger stations, particularly in the South Island, made a practice of scouring their wool (to save transport costs) and then shipping it to London, as there was no demand on the local market for the scoured product. They too claimed better returns from this practice.

By the season 1914-15 322,000 bales of wool were sold in New Zealand, to a total value of nearly £5,000,000. By the following year the value for a similar quantity of wool had jumped to nearly £8,000,000, but, on account of the World War, marketing conditions were rapidly becoming very uncertain and auctions as they had previously existed impossible.

(ii) 1916-1920—"The Commandeer": Under a proclamation of December 21, 1916, the Crown became the sole buyer and seller of wool, and wool-brokers were appointed to act as agents of the Government in these transactions. Wool-growers had to deliver their wool to the store of a Government broker, where it was examined, classified, and valued by two experts—one of them appointed by the Government and the other by the broker. A detailed price and type schedule for all wools was prepared, and the Imperial Government agreed to pay a price 55 per cent. above the ruling average price for the 1913-14 clip. All charges incidental to handling the wool were met by the Imperial Government, so that the purchase price was the actual net cash return to the grower. As the Imperial Government also agreed to return to the grower half the profits on any wool re-sold, but to bear any losses incurred itself, the scheme was a generous one to the wool-grower.

Four clips were requisitioned under the scheme, namely 1916-17, 1917-18, 1918-19, and 1919-20, a total of 2,350,000 bales of wool to the value of almost £59,000,000.

(iii) 1920-1939—The "Post-War" Period: "BAWRA": At the close of the commandeer period Britain still held enormous stocks of unsold wool, including almost 800,000 bales from New Zealand. It was in an effort to dispose of this surplus without completely glutting the market that BAWRA was formed. The name stood for British Australian Wool Realisation Association, Ltd., which was established in January, 1921. In addition to the operation of BAWRA in disposing of old stocks of wool, regulations were brought in in New Zealand first completely prohibiting any sales of the new clip for two months, and later allowing increasing quantities to be sold, but with the imposition of a minimum price. As market prices were steadily rising, the minimum price clause was revoked in 1922, but a permanent legacy from this period is the control of quantities of wool offered at auction sales by the Wool Committee, which has persisted. This committee still functions, and includes a chairman appointed by the Minister of Agriculture and representatives of the Wool Brokers' Association and the Sheepowners' Federation. With the disposal of all surplus wool stocks by 1924, BAWRA was dissolved, after performing in an outstanding manner a necessary and difficult task.

From Farm to Mill

The channels through which our wool normally flows from the farm to the manufacturer may be considered at this stage. Restrictions of space forbid anything but the barest outline:

(1) The sheep are mustered by shepherds with dogs, and brought to (2) the sheep-yards, where they are held, and those requiring it (3) "dagged," i.e., pieces of dried dung clipped off the wool round the tail. (4) The sheep are put into the wool-shed where they are held overnight in small pens. This causes them to sweat, and makes (5) the shearing easier next day. Most properties use shearing-machines, but some of the high-country stations in the South Island still use blade shears to leave more wool on as a protection from the cold. (6) The sheep are then wool marked with the owner's brand, and (7) returned to their paddocks. (8) The shorn fleece is picked up and thrown on a slatted wool table, where it is (9) skirted, this procedure involving the removal of all the inferior wool from the main portion of the fleece, which is then (10) rolled into a compact bundle. On most of the larger properties it is now usually (11) classed by a specialist wool-classer, who classes fleeces of similar type together into (12) the bins, where they are held until required for (13) pressing into packs by a manually-operated press. These bales average about 340lb. in weight, and they are now (14) stencilled with the owner's brand, bale number, and description of wool, and (15) dispatched to the wool-broker. When they are (16) received by the broker description and weights of bales are noted, and they are (17) piled up in stacks. A proportion of each line of bales is put on the well-lighted top floor of the store, where (18) the ends are cut open to display the wool. (19) In pre-war days this was valued by competing buyers, who subsequently bid for it at auction, but at present it is appraised on a standard schedule of values by a team of appraisers. (20) The wool which has been pulled out is pushed back into the bales, and these are then (21) check-weighed and resewn. (22) Shipping marks are placed on the bales, and then it is usual to (23) "dump" them, i.e., force two bales into the volume normally occupied by one, by means of a powerful hydraulic press, and bind them thus with steel bands or wires. They are then (24) carted or railed to the ship, and (25) exported. This gives the usual procedure from which there may be certain deviations, such as will be explained presently in regard to classing.

Normal Methods of Disposal

At the beginning of the century only a quarter of the wool grown in New Zealand was sold through the auction sales conducted by the wool-brokers, the remainder being sold by direct consignment to Britain or by private treaty to country wool-buyers.

The central auction system expanded rapidly on its own merits, and

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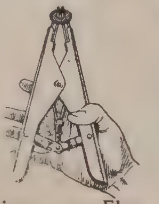

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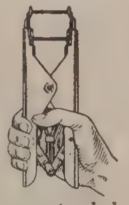
"I have now used your Elastrator for three seasons, doing on the average between 600 and 700 lambs. . . . I can recommend your method to any intending user. Yours faithfully, THOS. A. MOORE."



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SURE AND SIMPLE,
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[All photos on opposite page, except that at bottom right, by T. Holden.]

FROM FARM TO MILL

Transport

Display for sale

Auction (pre-war)

Appraisal (today)

Scouring

Combing

immediately prior to the present war accounted for at least 85 per cent. of the wool sold in New Zealand. Marketing in Australia and South Africa developed along similar lines, but in South America sales are still by private treaty. In North America and Europe also sales are usually by the latter method, but these are not exporting countries. Many advantages are claimed for the system of selling by auction at a few centralised points, and quoted below is a section from the publication "Wool" by the New Zealand Loan and Mercantile Agency Co., Ltd., which sets out these points very clearly:—

> The main features of the central auctioning system may be said to be:—
>
> (a) The collection of large quantities of wool of various grades and qualities at convenient focal points, thereby attracting the principal world buyers, facilitating inspection, ensuring genuine competition among buyers, and making anything in the nature of a ring on their part difficult, if not impossible.
>
> (b) It places at the disposal of the small producer highly-skilled advice and assistance at relatively low cost, and enables small clips to be classed, graded, and amalgamated, thereby attracting a class of buyer who would not be interested in small, individual, unclassed lots.
>
> (c) It assists growers (especially the smaller growers) to obtain finance against their wool clips.
>
> (d) It encourages a spirit of healthy competition among growers to class and grade their clips to the best advantage, with a view to attracting the highest possible price.
>
> (e) It helps producers of wool to keep in constant touch with current wool prices, as the prices realised at the auction sales are publicised by Press and radio.
>
> (f) The free publicity given to the auction sales throughout the world is a valuable advertisement for wool.
>
> There can be little doubt that in sales by private treaty the small producer is largely in the hands of the buyer, as competition is restricted and a combination of buyers against any producer is facilitated and indeed almost encouraged.

The auction sales were usually held in some large building, such as the town hall or an opera house in each centre, and lent a touch of colour to the selling season with their collection of international buyers, the staccato bids, the rapid tempo of the proceedings, and the excitement and anticlimax as prices soared and just as often crashed. Space forbids going into detail, but the modern auction system acquired many regulations and safeguards as it evolved, and both the Brokers' and the Buyers' Associations have contributed to these. Once his wool is sold the producer's main concern is to get the money for it, and he is not kept waiting long, for the rules stipulate that the buyer must pay at or before "prompt," which means in effect 14 days after the sale.

Prior to the war the methods of disposal actually open to the grower were as follows:—

1. Sell wool at auction through a broker.
   - (a) The broker both skirting and classing the wool.
   - (b) The farmer doing the skirting but leaving the classing to the broker.
   - (c) The farmer skirting and classing, the broker merely displaying and selling.
   - (d) Small lots were often skirted and sent to the broker for binning, or
   - (e) Sent to the broker for skirting and binning.
   - (f) Lines of 3 bales or less might be "interlotted" by the broker with other small lines of similar type, to avoid "star lots." (A "star" is any lot of less than 4 bales, and is not sold in the main catalogue).
2. Ship direct to England for sale at the London wool auction sales.
3. Scour wool locally, and ship to London for sale.
4. Sell by private treaty to an itinerant wool-buyer.
5. Sell to a co-operative concern specialising in wool-sorting.
6. A combination of any of the above.

These various methods of disposal in greater detail are:—

1. (a) The statistics show that the average size of flock in New Zealand is approximately 1,000 sheep, and the number of bales of wool that these will produce varies from, say, 20 to 30, according to circumstances. It must be remembered, however, that this average of 1,000 sheep is derived from a relatively large number of small flocks and a correspondingly small number of large flocks, and actually three-quarters of the country's flocks are of less than 1,000 sheep, and half of them less than 500. On this basis at least half our wool clips are of 15 bales or less, so the amount of wool-classing that can be done on the farm is strictly limited in these cases. In addition, many of the smaller farms have poor facilities both in labour and equipment for handling wool, although it is frequently possible to overcome this drawback by making use of a neighbour's wool-shed. Where

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Manufacturers of "RELAX" Waterproof Goods & Folding Furniture.

"You can rely on 'RELAX'"

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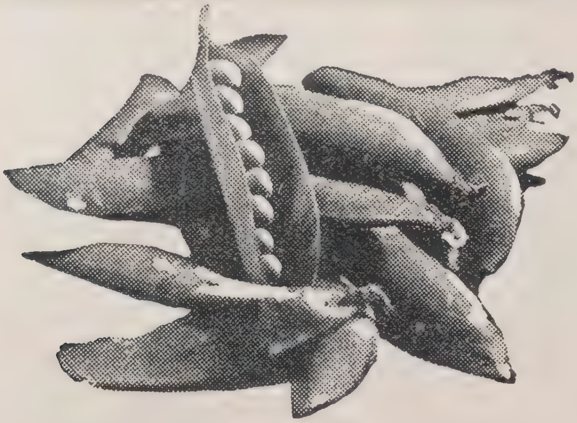

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CANTERBURY: Alex. McDonald & Co., Cashel Street, Christchurch. Telegrams: "Quality."

OTAGO CENTRAL: C. E. Wallington, Omakau. Phone, Omakau 6K. Telegrams: "Wallington."

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adequate facilities cannot be provided it is better to leave the whole job of preparation to the wool-broker. The usual charge for skirting and classing is ½d. per lb., and the broker will use his discretion as to the best method of disposal of small lots by binning, etc. (see below).

1. (b) Even with a small clip it is desirable that skirting should be carried out at shearing time whenever possible, because the fleece is then in its best condition for this operation. It has just come off the sheep and has not yet been disarranged and tangled by rolling, pressing, and unrolling, as would be the case with skirting when it reached the woolstore. If properly thrown out on the wool table, the different portions of the fleece are easy to distinguish and proper skirting can be efficiently carried out. (For full details of this process see "New Zealand Journal of Agriculture," Nov., 1944, p. 453). Where the broker has only to class the wool much less labour is involved, and the standard charge is ¼d. per lb.

1. (c) Where the quantities of wool warrant it and the necessary labour and facilities are available, classing on the farm has much to recommend it, and costs a good deal less than when done by the broker. Where the grower has the necessary skill he may class his own wool, but it is more usual to employ a professional classer to take complete charge of the woolroom.

Space does not permit a detailed discussion of the objects and benefits of wool-classing, but good classing should divide the clip into a few main lines with clear-cut distinctions between them. After the removal of inferior wool by skirting the fleece is the unit, and as many fleeces as possible of similar type are assembled together to make each line. As far as practicable the oddments such as belly wool, pieces, locks, etc., which are products of the skirting process, are also assembled into the largest possible even lines. Some fleeces, and small quantities of oddments, which on account of certain special characteristics cannot be fitted into any of the main lines, are usually sent to the broker for binning (see below).

Efficient classing benefits all parties concerned. The grower receives a better price for his product, and eventually his station brand—which is equivalent to his "trade-mark," achieves a good reputation with the buyers. The broker prefers to display well-classed clips in preference to shoddily-prepared wool, and his selling job is made easier. The buyer can select what he wants with greater facility, can value with more confidence and accuracy, and under the auction system can bid up to the last farthing for a desirable line of wool. Under the present appraisal system well-classed wools receive a definite premium over poorly-prepared lots. (The reasons for this are fully explained in the article "Wool Appraisement—How the Scheme Works"—see "New Zealand Journal of Agriculture," November, 1944).

The costs involved under the auction system were transport charges from farm to store, insurance in transit, warehousing, and commission, also the levy of 6d. per bale. These charges usually amounted to between 4 and 5 per cent. of the gross return to the farmer on his wool. The charges for skirting, classing, binning, etc., mentioned elsewhere are, of course, superimposed on the costs just mentioned, which cover simply the display and sale of the wool. Under the present appraisement system the broker is paid ⅝d. per lb. by the Government for displaying and selling the wool, so this amount is not a direct charge on the farmer, although he pays it indirectly by getting that much less for his wool. He still pays directly for transport.

1. (d), (e), and (f) Binning (or pooling as it is sometimes called) is the method used for the effective treatment of even the smallest quantities of wool, and all brokers now provide this service for their clients. The facilities available and the skill with which the method is applied vary a good deal from firm to firm, and some brokers have made more of a specialty of it than others. The system derives its name from the large number of bins which are provided to separate up the different grades of wool. Some brokers provide well over 200 of these bins. Each fleece received is graded as it passes over the wool table and allotted to the appropriate bin, where it joins other fleeces of similar type and quality, to make an even, uniform line of wool. When sufficient wool has accumulated in a bin it is offered for sale or appraisement under the firm's brand. The farmer is credited with the value according to the weight of his wool which went into each bin. The charge for binning is usually ⅜d. per lb., and for binning and skirting ⅝d.

It is provided in the rules of the New Zealand Wool Brokers' Association that lots of 3 bales and under (with certain minor exceptions) are to be known as "star" lots, and are not to be offered for sale in the main catalogue. Under the auction system such wools tend to be neglected by the main buyers, and their price suffers accordingly. At present they receive full value under the appraisement scheme, but are still avoided whenever possible, as they waste valuable time and space. In practice the brokers avoid making star lots whenever they can, and the principal method employed is known as interlotting or grouping. Under this system a minimum of eight bales of similar type are grouped together, and sold as a single lot. The farmer does not submerge the identity of his brand, but obviously could no longer place a reserve on his wool under the auction system, as it was sold along with that from several other properties. At present, of course, no reserves can be placed on wool. Interlotting is something of a makeshift, and the results are a compromise. Naturally, with a line of mixed wool of this type the buyer or appraiser tends to value on a conservative basis, and while the owner of the poorest wool in the lot **may** get more than it is worth, the owner of the best wool will certainly lose by it. In most cases the owner of the wool would secure a higher **net return** by sending his wool to a reputable firm for binning (even after paying the extra ⅜d. per lb.) than by allowing it to be interlotted, which costs him only 1/6 per bale.

2. There are no exact figures available on the quantity of wool which was shipped direct to London for sale at the large central wool auctions held there before the war. At one time a large part of our wool was disposed of in this way, but in the years just preceding the present war the amount was probably below 10 per cent. of our annual clip. Those who still sent their wool to London claimed that in doing so they received better returns over a period of years than they would have got at the New Zealand auction sales. Their contention is almost impossible to prove on account of the difficulty of securing valid comparisons. There is no doubt that in some seasons London prices were definitely in advance of New Zealand parity, and for some specialty lines of wool (e.g. scoured) this was nearly always the case, but in the long run and covering all types of wool there is not enough available evidence to prove anything. Selling in New Zealand is certainly easier, the time lag before payment is much shorter, and the producer has better control of his wool.

3. In the early days of colonisation a number of the large sheep stations

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in New Zealand made a practice of scouring their wool on the property. They had crude equipment for doing the job, but managed to remove most of the grease and dirt from the wool, and achieved their main object of reducing the weight which had to be carted to the coast, and at the same time increased the value per lb. of the product.

In later years numbers of permanent scouring establishments were built at strategic points, and handled the wool on a commission and/or a speculative basis. Just before the war there were 25 of these establishments handling an average of some 50,000 bales of greasy wool a year. Some of them were rather primitive in their equipment and methods, and the industry was purely seasonal—partly due to the small quantities of wool handled, and partly due to the fact that many works depended on outside drying and could operate only in summer. In spite of these handicaps a number of works had built up a good reputation for their products on the London market, and their clients were able to show over a period of years a net gain by selling their wool in the scoured state in London rather than in the grease in New Zealand.

It has always been unwise to attempt to sell scoured wool in New Zealand, because the buyers who came to the auction sales had no orders for such wool, and were not interested in it. In London, on the other hand, the wool could be inspected and bought by those directly interested in it. Unfortunately, the wool-producer has not always had access to the true facts, and the pros and cons of scouring in New Zealand have been hedged about with misconceptions and propaganda. Naturally, Bradford has never encouraged scouring in New Zealand, because it would take business away from them, and also because they emphasise that the requirements of the trade for selection, sorting, and blending can be more efficiently carried out on the spot. The latter argument at least is perfectly sound when it refers to high-class fleece wools for the worsted section of the trade, because scoured wools cannot be sorted, but it leaves a large proportion of other types of wool suitable for the "woollen" trade which can be quite well enough sorted before scouring in New Zealand. These wools comprise mainly the oddments of the clip, such as bellies, pieces, locks, crutchings, dingy fleece wool, dead wool, and to some extent lambs' wool. At a conservative estimate 25 per cent. of our wool clip could be considered suitable for scouring, and on this basis it is probable that we could scour up to 200,000 bales a year without upsetting normal trade practices or antagonising our overseas customers. This contention is partially borne out by the fact that during the present appraisal scheme an average of about 150,000 bales of greasy wool a year have been selected and scoured by the 27 scouring-works in the Dominion.

4. Latterly, sales by private treaty have been a very small proportion, because, as the figures show, in 1939 at least 85 per cent. of our wool was sold at public auction, and of the remainder sales in London either in the grease or scoured accounted for the major portion. Very few farmers would sell a whole clip privately, although many farmers were quite willing to sell an odd fleece or two left over after shearing, often along with some skins, to an itinerant buyer. As the buyer usually sold the wool at auction in the long run, and as he had to make a living in the process, the farmer stood to lose by the transaction, but what he lost in cash he probably made up in convenience.

5. The essential difference between classing and sorting wool is that in classing the fleece is treated as a unit, and fleeces of similar type are grouped together, whereas in sorting the fleece is broken up into perhaps half a dozen different sorts of wool. Similar portions from different fleeces are grouped together to form "matchings." It follows that a line of matchings will be much more uniform than a line of whole fleeces, and sorting is the natural sequel to classing. It has to be performed at some stage, usually at the mill, before the wool is finally converted into fabric. Before the war there was one firm in New Zealand—a co-operative concern—which specialised in sorting, and was able to sell wool abroad on sample. They claimed to show a better return to their clients than by ordinary methods of sale. Under war conditions they are unable to continue with their sorting operations, and at present the outlook is uncertain.

Grading and Inspection

Grading and inspection are not normally Government functions at all. In peacetime there is no compulsion on the farmer to carry out any classing or grading of his wool, although it is in his own interests to do so. He may either class his wool himself or employ a professional wool-classer to do it for him, or he may leave these functions to his broker, as mentioned above.

Inspection of wool offered for sale at auction comes within the province of both the Wool Brokers' and the Wool Buyers' Associations. Both these bodies have books of rules and regulations which cover the manner in which the wool is to be handled, displayed, and sold. In normal times the Buyers' Association employs an inspector, who visits the wool-stores prior to sale, and sees that the brokers observe the conditions mutually agreed upon between the two associations.

Although the Government enforces no laws covering the grading of wool, the Department of Agriculture takes an active interest in advising and instructing farmers in the best methods of preparing their wool. In normal times two officers are employed, whose work is mainly the giving of advice, lectures, and demonstrations to farmers on wool-growing and the proper preparation of their wool for sale. This instructional work covers the whole of New Zealand, and is carried out in conjunction with a certain amount of investigational and extension work on related problems, all with the same ultimate objective, to encourage the most efficient methods of wool production combined with the most effective means of marketing.

(iv) 1939 Onwards—The Appraisement Scheme:

Immediately on the outbreak of hostilities in 1939 Britain once more offered to buy all our wool for the duration of the war and one season thereafter. The only point in question was the price to be paid, and a meeting was held in Wellington to determine this. All interested parties were represented—the producers of the wool, the Government, which would have to administer the scheme, the Wool Brokers' Association, which would have to handle the wool, and the Wool Buyers' Association, which would have to supply the personnel to carry out appraisement. The aim was to fix a price which, while being reasonably remunerative to the farmer, would not unduly penalise Britain. An average price of 1/- per greasy lb. for the grower of the wool was agreed upon as a fair one, and when the negotiations were completed the net average price to the farmer worked out at 12.25d. per lb.

The next step was to secure a body of men to implement the appraisal system, and the only ones available in the country with the requisite knowledge and experience were the wool-buyers. The Wool Buyers' Association immediately set to work to draw up a type and price schedule for all grades of wool, or, as it is generally referred to in the trade, the "Bareme." Some idea of the magnitude of this task can be judged from the fact that eventually 977 types of greasy wool were established, for each of which a standard clean-scoured price had to be fixed, so that the **over-all average price** to the farmer for the 800,000 odd bales of greasy wool falling into these many different grades would work out at 12.25d. per lb. in the greasy state—the figure agreed upon with Britain. Besides the Bareme for greasy wool there is another for the slipe wool from freezing works and fellmongers, embracing nearly 500 additional types.

A Controlling Appraiser was appointed, who has one Assistant Controlling Appraiser stationed in the North Island and one in the South. Each of these assistants has attached to him a team consisting of supervising appraisers, appraisers, and samplers. The actual numbers vary according to the amount of wool which has to be dealt with, and members are transferred between the two teams as required to handle the work. A large clerical staff is also necessary. Instead of a roster of auction sales being drawn up, as was done before the war, a list of wool appraisals is now prepared, covering the normal selling season. Before the war wool was sold at eight centres, namely, Auckland, Napier, Wanganui, Wellington, Christchurch, Timaru, Dunedin, and Invercargill. Since then it has been found necessary to include additional appraisal points to expedite the handling and shipping of the wool, and these are Tokomaru Bay, Tolaga Bay, Gisborne, Nelson, Blenheim, and Oamaru. Facilities for storage and valuing were provided at these points. As far as the woolbrokers are concerned the introduction of the appraisal system has not brought about any radical changes. The wool is handled and displayed in the same way as previously, but there is now no point in a farmer pestering the broker to get his wool into a particular sale, as sometimes happened previously, because whatever appraisal it is sold at the basis of valuation will be exactly the same.

The appraisers work in pairs, and later their work is checked by a supervising appraiser, so that uniformity in valuation will be preserved from store to store and centre to

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centre. Provision is also made that if the broker (acting on his client's behalf) considers that any lot of wool has been under-valued, he can have it re-checked, and if necessary the supervising appraiser can be called in to act as arbiter. His decision is final.

Under the original agreement Britain offered to pay an over-all average of 10.55d. **sterling** per lb. for our wool, which included the charges for appraisal and handling up to f.o.b. The appraisers are paid set salaries, and the brokers receive ⅝d. per lb., to cover the handling, display, insurance, etc., of the wool. They are also paid storage at the rate of 3d. per bale per week, after the initial free storage period of 28 days has expired. The average price received by the farmer for his wool, from Britain, in the original agreement was 12.25d. per lb. Of course, from this had to be deducted the charges for services rendered by the broker, such as skirting, classing, binning, etc.

It will readily be appreciated that with a quantity of wool as large as the New Zealand clip, and comprising so many types, it was virtually impossible for the average to work out **exactly** at 12.25d., so a Retention Fund of 5 per cent. was established to cover discrepancies. That is to say, the farmer was actually paid out the value of his wool less 5 per cent. 14 days after the completion of appraisal. Thus, if the season was a poor one and the style of the clip below average, it meant that appraised values would be somewhat down. So at the end of the season the farmer received his share of the 5 per cent. retention money, plus the difference by which actual average appraised values were below 12.25d. Conversely, in a particularly good season the reverse would apply, and the pay-out at the end of the year would be slightly less than 5 per cent., although this has not so far occurred. The Retention Fund also takes care of any slight alteration in the standard of valuing from season to season, for in spite of every care the appraisers are only human, and there is a long gap between wool seasons.

On account of increased costs of production in Australia, Britain granted that country an increase of 15 per cent. for her wool in 1942. At the same time she voluntarily granted a similar increase to South Africa and New Zealand, bringing the price to the New Zealand farmer up to 14.0875d. per lb. Actually the farmer did not receive the whole of this 15 per cent. increase, as it was decided in the interests of stabilisation not to increase the issue price of wool to our local New Zealand mills, which still get it at the old price of 12.25d. per lb. The aim was to prevent a further increase in the price of clothes. As the local mills, even in wartime, use only some 5 per cent. of our wool, the effect on the price received by the farmer was relatively small, and he actually received 13.9676d. for his wool in 1943-44, instead of 14.0875d., which would have represented the full 15 per cent. During 1942 the Retention Fund was increased to 10 per cent., and the present arrangement is that at the end of the season the wool-grower receives half of this in cash and the other half in bonds, or he may elect to take the full amount in bonds. (In practice the farmer can sell these bonds for cash if he so wishes). The adjustment money, i.e., the small addition to the retention money, is also paid in cash. The half-share of any profits made by Britain on re-sale of our wool will be paid out in a lump sum after the war.

Although the contract for the sale of our wool is exclusively with Britain, not the whole of our clip goes there. Last season (1943-44) 51,426 bales went to our own woollen mills, and Britain diverted substantial quantities to other destinations, so that actual shipments were as follows:—

	Bales.
United Kingdom	622,494
Canada	83,252
United States of America ..	57,278
India	12,800
Australia	1,790
Total	777,614

The appraisement scheme was fully covered in an article in the "New Zealand Journal of Agriculture" of November, 1944, and is now available in bulletin form, New Zealand Department of Agriculture Bulletin No. 237, available free on request.

On the whole the appraisement scheme has worked very smoothly, considering the very large volume of wool handled, and the producer for the first time in many years knows in advance the price his wool will bring, and has reasonable stability of income, allowing him to budget ahead.

Types of N.Z. Wool

The numbers and percentages of the different breeds of sheep in the country, which, after due allowance for differences in fleece weight between breeds have been made, will give an approximate idea of the amounts and sorts of wool produced, appear in table 3.

In the wool trade, however, certain characteristics other than breed are of over-riding importance, and fineness of fibre diameter is one of the most important. Broadly, New Zealand's wool can be divided into two groups, Merino and Crossbred, using the latter term in its widest sense, i.e., all wools intermediate between Merino and Carpet types. In practice the Crossbred group, which constitutes approximately 97 per cent. of our wool, can be subdivided into several other trade categories, as set out in the following table. Without going into detail it may be said that the "counts" or "quality numbers" really signify average fibre diameter—the higher the count the finer the fibre. The range given below covers all the wool produced in New Zealand.

TABLE 4—TYPES OF WOOL.

New Zealand Trade Description of Wool.	Count.
Fine Merino	70's
Medium Merino	64's
Strong Merino	60's
Quarter-bred	58's
Half-bred (fine)	56's
Half-bred (strong)	54's
Three-quarter-bred or Superfine Crossbred	50's
Fine Crossbred	48's
Medium Crossbred	46's
Strong Crossbred	44's
Low Crossbred	40's
Lincoln	36's

TABLE 3.—DISTRIBUTION OF BREEDS, 1944.

Name of Breed.	Stud Sheep entered in Flock Book.	Per cent.	Distinctive breeds but not entered in Flock Book	Per cent.	Total number.	Total per-centage.
Merino	19,926	0.06	787,546	2.37	807,472	2.48
Lincoln	3,274	0.01	37,026	0.11	40,300	0.12
Romney	271,827	0.82	5,695,326	17.16	5,967,153	17.97
Border Leicester	12,651	0.04	29,399	0.09	42,050	0.13
English Leicester	13,848	0.04	15,147	0.05	28,995	0.09
Shropshire	769	0.00	3,190	0.01	3,859	0.01
Southdown	155,681	0.47	236,166	0.71	391,847	1.18
Corriedale	43,877	0.13	1,181,613	3.56	1,225,490	3.69
Half-bred	5,904	0.02	2,256,306	6.80	2,262,210	6.82
Ryeland	7,866	0.02	4,531	0.01	12,397	0.04
Other breeds	3,191	0.01	7,892	0.02	11,083	0.03
Crossbreds and others ..	—	—	—	—	22,407,342	67.49
Grand Total	538,814	1.62	10,254,142	30.89	33,200,298	100.00

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Other countries, of course, produce wool outside this range, such as the Superfine Merino wool of Australia, or the Coarse Carpet wool of India. The above table gives merely a broad outline of the usual practice of grading on "quality" (with reference mainly to average fibre diameter), but other factors such as length, soundness, colour, efficiency of skirting, freedom from vegetable matter, etc., are all taken into account in determining the commercial value of the wool.

It is advisable to mention very briefly at this point the distinction between "Woollen" and "Worsted"—the two broad divisions into which the wool-manufacturing trade of the world may be divided. The two systems make use of different types of raw material and machinery. It may be said that very generally the Woollen trade utilises cheap wools, mostly inferior in length and soundness compared with those for the Worsted trade, and usually the sorting it goes through is much less intensive. Not only re-worked wool, but cotton and synthetic materials may be blended in with the wool, and the number of processes the blend goes through prior to spinning is kept to a minimum. The resulting yarn is soft and fuzzy, but can be woven into a large variety of useful materials, ranging from cheap to moderate in price.

The Worsted trade, on the other hand, pays more for its raw materials, buying generally the soundest and longest wool. No reclaimed fibres are used, although a little synthetic fibre may be employed with the wool, to give novelty and style effects, but this is used sparingly. Sorting has to be intensive, and the wool goes through many manufacturing processes before emerging as a smooth, strong yarn, which is woven into many high-class materials, or knitted into fine fabrics. These products are generally high in style and finish, but also in price.

It will thus be seen that even as far back as the classing stage distinctions have to be made between wools which reflect their ultimate manner of use and, consequently, their value; e.g., unsound wools are not suitable for the Worsted trade, and long, well-grown, shafty wools are too dear for the Woollen trade. It is throwing money away to mix wools of fundamentally different types.

New Zealand's total wool production (on a greasy basis) for 1943-44 is estimated at 330,000,000lb., which includes fleece wool, oddments, crutchings, wool on skins, slipe wool, and scoured wool, after necessary adjustments have been made to the two last-named classes to convert the weights to a greasy basis.

As mentioned previously, precise information regarding the destination and uses of our wool is lacking, but it is possible to mention in a general way the sort of fabrics usually made from certain kinds of wool.

It takes fine wool to make fine fabrics, and Merino is used for high-quality underclothing, knitting yarns, high-class worsteds, and fine dress materials. The quarter-bred and half-bred types (including Corriedale) are used for a similar range of products to Merino wool, but with less emphasis on softness and more on durability. They are also used for flannels and high-quality travelling rugs and blankets. Three-quarter-breds and Fine Crossbreds are used for a wide variety of purposes, including army uniforms, overcoating materials, knitting yarns, sports fabrics, rugs, and blankets, to mention but a few. Medium Crossbred is used for materials where durability is required, such as army battledress and overcoats, blankets, serges, and sports tweeds. The coarser Crossbred types are used for such things as upholstery materials, rugs, felts of various kinds, braid, etc. Lincoln wool may go into carpets, furnishing fabrics, roller lappings, bunting, etc. The Down type wools, which include the major portion of the slipe wool (removed from skins at freezing works), have special properties which render them particularly suitable for such things as high-class hosiery materials and flannels.

TABLE 5—WOOL PRODUCTION IN NEW ZEALAND.

(From New Zealand Official Year Book and Dalgety's Annual Wool Review).

Season. (Year ended June).	Estimated Total Wool Production. '000lb.	Total Wool Exports. '000lb.	Percentage for export.	Percentage used locally.	Value of Wool Exports. £'000.	Value of Wool sold at Auction or Appraised in N.Z. £'000.	Average Price per (greasy) lb. of Wool sold at Auction or Appraisal.
							d.
1934-35	265,000	200,385	96.7	3.3	6,328	4,486	6.54
35-36	304,300	317,865	97.5	2.5	12,762	10,083	9.13
36-37	302,900	286,465	97.5	2.5	18,771	15,344	15.71
37-38	296,800	258,619	97.6	2.4	12,326	9,028	10.04
38-39	327,700	305,491	97.8	2.2	12,899	9,386	9.17
39-40	310,000	272,326	96.2	3.8	14,664	12,877	12.22
40-41	331,000	197,881	95.7	4.3	11,611	13,972	12.24
41-42	345,000	238,921	95.3	4.7	14,437	14,499	12.25
42-43	340,000	248,565	95.1	4.9	15,216	16,803	13.95
43-44	330,000	244,431	94.8	5.2	16,307	15,811	13.97

[The apparent discrepancies between the second, third, and fourth columns are due to a varying carry-over caused by shipping difficulties.]

There are in New Zealand 14 woollen mills, which in normal times consume 6,000,000 to 7,000,000lb. of wool annually, and turn out a complete range of woollen and worsted products, including made-up garments and knitwear. Some of our mills are particularly celebrated for the exceedingly high-quality travelling rugs which they produce.

In addition, there are 27 wool-scouring works in the country, which in the past have fluctuated considerably in their output, but during the war have been working to full capacity and scouring, on an average, some 150,000 bales per annum.

Wool Exports and Prices

A Bradford man once naively remarked that the only certain thing about the wool market was its uncertainty. Many wool-producers will probably agree with him, but statistics show that wool is not alone in being subject to sudden and violent price fluctuations. Other well-known raw materials which enter into international trade, such as cotton, rubber, and wheat, show even greater average annual price fluctuations. Synthetic fibres, on the other hand, have been characterised by extremely stable price levels, which have been artificially controlled by powerful cartels.

A concise picture of our wool exports, revenue, and average prices over many years is given in the graph on the next page. The exports and revenue are taken from official statistics, but the average price per lb. prior to 1922 has been derived indirectly, and may show minor inaccuracies, but is sufficiently near the mark to illustrate the general trend.

Synthetic Fibres v. Wool

Anyone who reads the newspapers cannot help being aware of the constant discovery and development of new synthetic textile fibres, and the modifications and improvements to existing ones. We hear of synthetics being produced from such diverse raw materials as coal and casein, soya beans and seaweed, peanuts and pulpwood. Their number is legion, and

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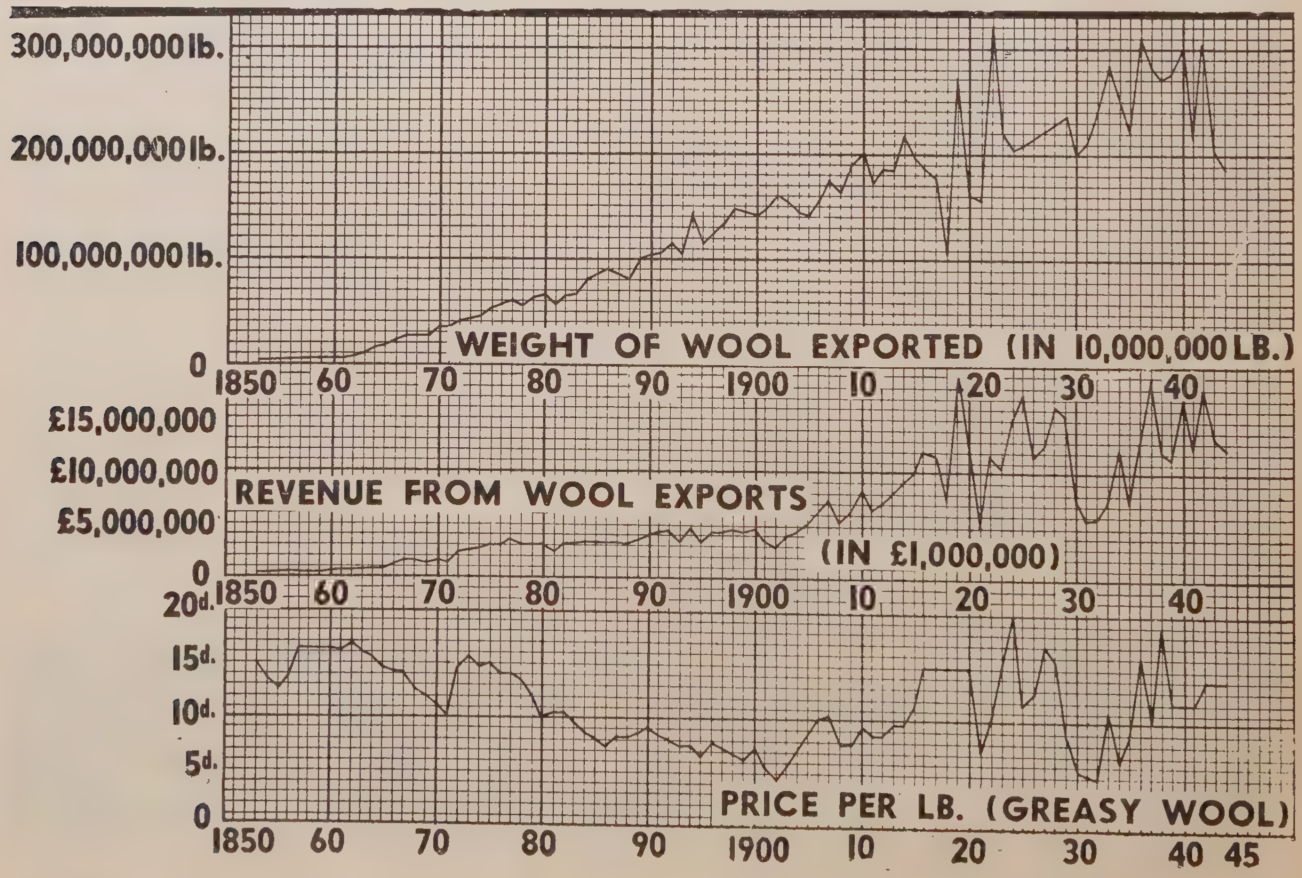
each new arrival is heralded with a fanfare of sensational Press publicity, and fantastic claims of wonderful new properties of warmth, strength, cheapness, and proof against this and that. When this smokescreen is dispersed what remains? A great deal, and more than enough to disturb the peace of mind of the world's wool-producers. Wool possesses a formidable list of valuable textile properties, and so far no single synthetic material has been able to equal or better more than a few of these valuable attributes. Nevertheless, sheep-farmers can no longer afford to ignore these new fibres, and merely rest on their laurels, with a false sense of security in the knowledge that "wool is best." That slogan still remains true, but by an ever-diminishing margin. Some of the most able scientists in the world are continually striving after a fibre which will be the perfect substitute for wool, and that their efforts are not altogether unavailing is shown not only by the range and diversity of new products emerging from the laboratory, but by the fact that one by one, and step by step, they are imitating the valuable attributes of wool. As yet the scientists have been unable to imitate the fundamental and very complex internal structure of the wool fibre, or its precise chemical make-up, yet although these may seem tasks of insuperable difficulty, he would be a bold man to say that they will not one day be accomplished.

All synthetic fibres possess the enormous advantage over wool of being standardised products, strictly under control in regard to all their properties. If the customer says, "The same again please," he can be sure of getting a satisfactory repeat order. Unfortunately, he has not always this assurance when buying wool. Many of the synthetics possess, in addition, the advantage of low manufacturing cost and a stable price over long periods. When a textile manufacturer can buy standardised synthetic material for one-third the cost of wool in an equivalent stage of manufacture it is not surprising that he seeks ways of using increasing quantities to blend with his wool. In the final analysis, textile manufacturers owe no firm allegiance to wool, for if they can use their machines on a blend, or even on 100 per cent. synthetic, and make a greater profit thereby, they are not likely to be unduly concerned about the welfare of the sheep-farmer.

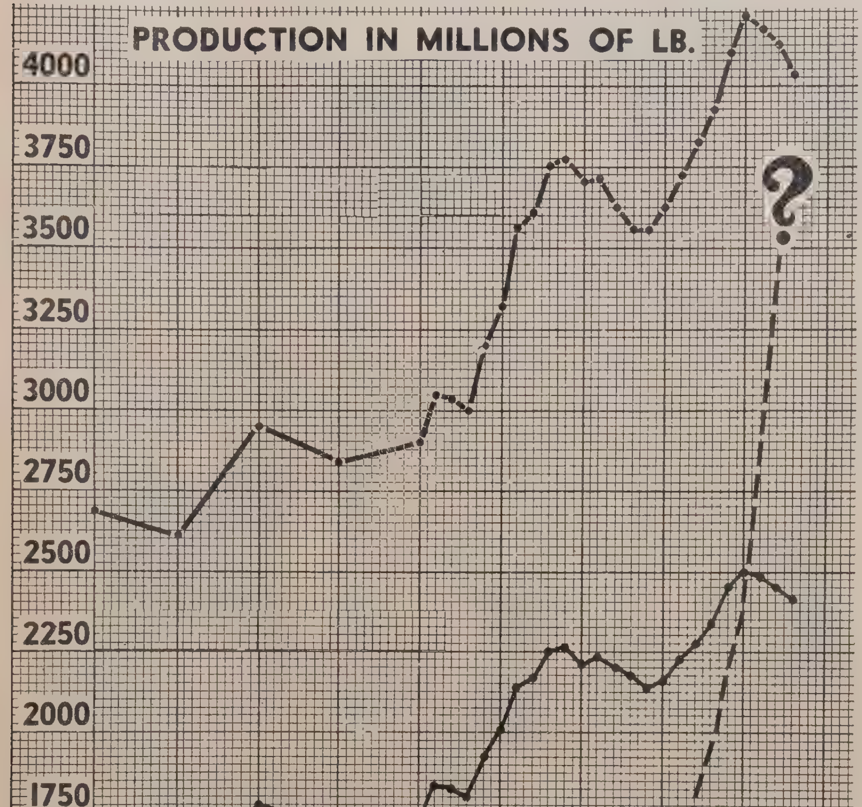
It has been claimed that synthetic fibres are an adjunct rather than a competitor to wool, and that by skilful blending with wool cheap yet effective novelty effects can be produced, which result in increasing sales of wool. This is true, and it is also true that until the war began all the wool produced in the world was being sold and used each year. The question is:—If synthetic fibres are being made better and better, cheaper and cheaper, more and more abundant, will there not come a time when they displace wool to a serious extent?

The graph on the opposite page shows the startling growth in the production of synthetics. It can be seen that by 1940 they had equalled world production of wool on a clean-scoured basis, which after all is the only fair way to compare the two, for grease and dirt do not count. More recent figures are not at present available, but the trend is plain. The displacement of wool has already begun, and it has been practically completely ousted from certain lines of production, such as women's hosiery, part of the underwear trade, and also linings for suits and overcoats. Synthetic fibres have also put a stop to any really high prices being paid for wool—the peaks in the graph which in the past have helped to compensate for the depressions. As soon as wool prices get unduly high synthetic fibres tend to be substituted for wool, and the normal law of supply and demand comes into operation to reduce the price of wool.



Publicity, Research, Etc.

In the past New Zealand sheep-farmers have tended to be individualists, and have not been as closely organised as other sections of the primary industries. This is hardly surprising on taking into account the size and location of the average sheep station compared with other types of holdings, and the relatively few occasions on which sheep-farmers have an opportunity to meet and discuss their problems. The only official body elected to watch their interests was the New Zealand Sheepowners' Federation, which has now amalgamated with the New Zealand Farmers' Union.



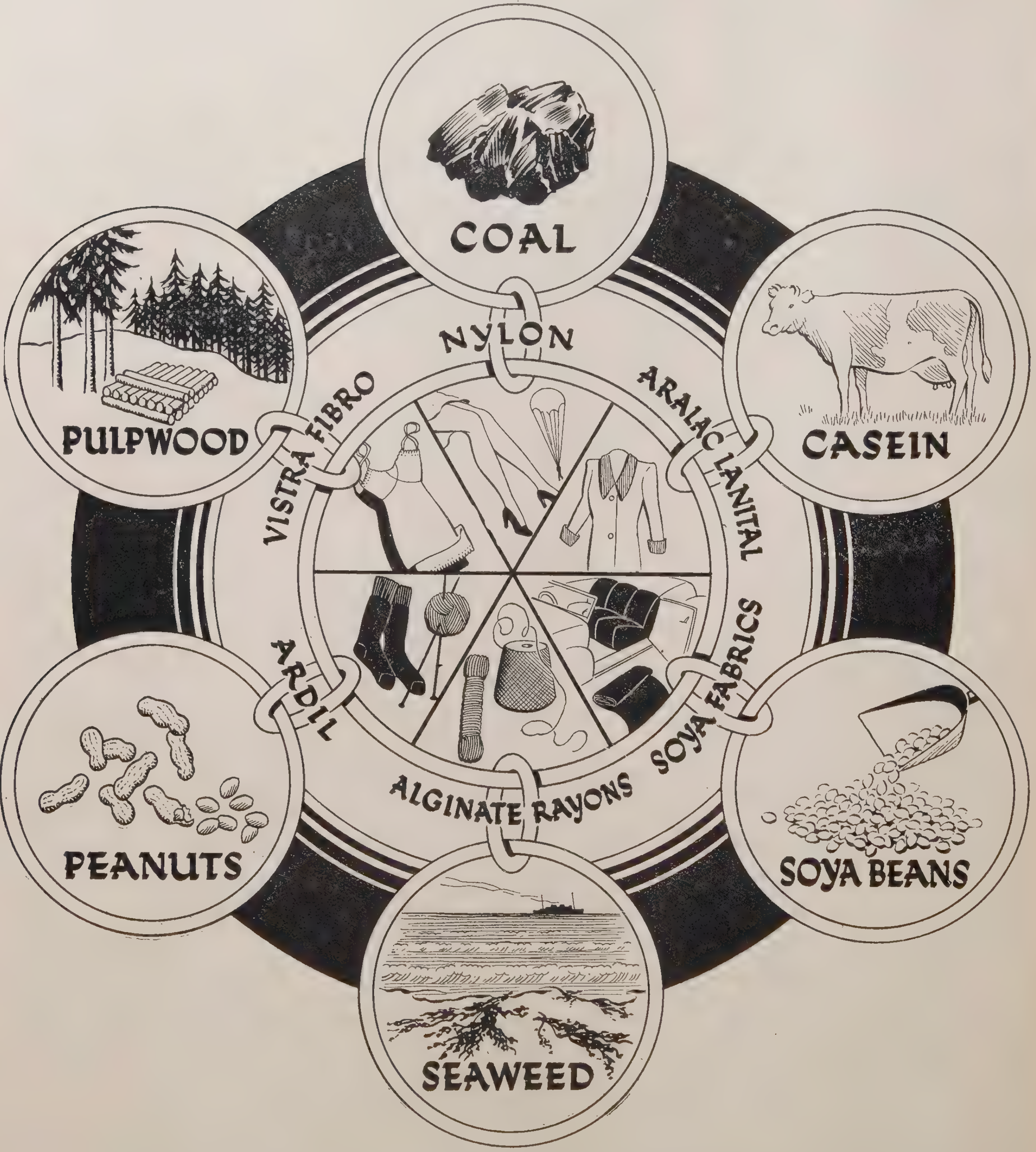
[The only figures procurable for world wool greasy and clean prior to 1920 were at five-year intervals. They are shown on the graph merely to indicate the trend.]

It was not until the depression of the early '30's, when wool prices dropped to catastrophic levels, that producers really got together to consider ways and means of tackling the industry's problems. These were thoroughly thrashed out in the course of the next few years, and on October 31, 1936, the Wool Industry Promotion Act was passed, which established a levy of 6d. per bale on all wool produced in New Zealand for publicity and research purposes. The New Zealand Wool Council was set up at the same time to administer the fund.

A large part of the revenue collected went to provide New Zealand's contribution to the work of the International Wool Secretariat in London. This body comprised a representative from each of the main Empire wool-producing countries—Australia, New Zealand, and South Africa—and there was close liaison between it and the Wool Councils in these three countries. The International Wool Secretariat—or I.W.S. as it is commonly called—did some excellent publicity work before the outbreak of war in 1939 seriously restricted its activities. It did not carry out research directly, but sponsored various research projects which were undertaken by such bodies as the Woollen Manufacturers' Research Association. As already mentioned, wool possesses an extensive array of valuable textile properties, and one or two disadvantages. The I.W.S. initiated research on a number of these valuable properties, to back up with scientific facts what was already known in a general way. These were the sound foundation of their publicity programme. All propaganda for wool was based on accurate data, and a most ambitious advertising campaign was commenced. Wool's drawbacks were not overlooked, and research on these and their remedies—such as non-shrink and moth-proofing processes—was included in the programme, and promising results in these have been obtained. During the war years the secretariat has continued to function on a much-reduced scale, but has kept the main links in its organisation intact as a basis for future expansion. It is likely that the I.W.S. will play an increasingly important part in the post-war organisation of the Empire wool industry, and its unrivalled fund of knowledge and experience will then be utilised to the full. Dr. I. Clunies Ross, one of the original members of the secretariat, summed up the position during his visit to New Zealand last year, when he said:—

> Surely there is only one course to be taken by Australia and New Zealand, and that is to match the resources and efforts of the synthetic fibre producers with the far greater resources of the tens of

ARTIFICIAL AND SYNTHETIC FIBRES



PRACTICALLY all artificial fibres have one feature in common—the raw material is first reduced to the form of a viscous liquid and then squirted through tiny nozzles, or spinnerets, into a coagulating bath where the thin fibres harden immediately. All characteristics of the fibre are under close control, and a highly-standardised product results. The fibres produced are originally in long, continuous filaments, and may be used in this form, but are more commonly cut up into short bundles—known as "staple fibre"—in which form they can readily be blended with wool. Cellulose, usually derived from wood, forms the raw material for by far the largest proportion of staple fibres, which go by such names as "Vistra," "Fibro," etc. Proteins derived from milk, soya beans, peanuts, etc., are the basis of another group of fibres, which are closer to wool in chemical make-up and general behaviour than the cellulose fibres, but still fall short of the genuine article in several important characteristics. Nylon is an example of a true synthetic fibre where the actual chemical molecule has been synthesised from simpler materials.

thousands of wool-growers and of the peoples and Governments of producing countries. There is no corporation under heaven with a similar capital investment or a comparable power. . . . We must make up our minds that our effort will be on a scale never previously contemplated. We must take every step necessary to ensure, by research and extension, that loss from disease and inefficient production is reduced to a minimum. We must know what characters in wool are important for varying manufacturing purposes, and how by control of heredity and environment production policy may be modified to meet changing market requirements with speed and efficiency. We in the producing countries, who alone are vitally concerned in wool's future, must accept responsibility for textile research, to discover methods of improving the processing and manufacture of wool, and to find new modifications and uses for it, to demonstrate its virtues and versatility, and its relationship to human health.

We must, through the International Wool Secretariat, show the people of the world and tell the people of the world what wool, as the product of modernised and revitalised industry, can do. We must recover old markets, and find new markets.

Australia has put in hand plans for an extensive programme of research and publicity, and intends to spend £600,000 on this in the first season. By the Wool Industry Act, 1944, the original New Zealand Wool Council was replaced by the New Zealand Wool Board, with an increased membership and wider powers. The new board took office on January 11, 1945, and one of its first acts was to send three delegates to the Empire Wool Conference in Britain. New Zealand's future plans are not yet clearly defined, but will probably be announced after the return of the delegates.

In the past wool research has been carried out in New Zealand to the limit of the funds and personnel available, both of which have been very limited. Work has been done by Massey Agricultural College, the Department of Scientific and Industrial Research (working through Canterbury Agricultural College), the Wool Manufacturers' Research Association, and the Department of Agriculture. The work has been mainly confined to current problems on the production side, such as the detection and elimination of hairiness from stud flocks, the question of increasing fleece weight by suitable breeding and selection methods, and elimination of wool damage from branding materials. The manufacturers have been mainly concerned with their own current mill problems, and have no close liaison with the producer. Very little wool publicity has been carried out in this country, being confined almost solely to the displays at the Centennial Exhibition by the New Zealand Wool Council and those organised by the Department of Agriculture at the various Agricultural and Pastoral Shows.

Specialised courses in sheep-farming are available at a number of agricultural high schools and at the two agricultural colleges, while instruction in wool-classing is given at several technical colleges, by Massey Agricultural College, by the Department of Agriculture, and by Canterbury Agricultural College. Unfortunately, the facilities available at a number of the technical colleges are inadequate and much of the teaching has to be done at night, which is most undesirable. At the present time Massey College possesses by far the most complete facilities for this work, and offers full-time courses in the subject for resident students. Unfortunately, wool-classing is still mainly a seasonal industry, and to some extent must always remain so. Those who employ wool-classers—brokers, scourers, and farmers—have not yet demanded any registration or certification of classers on a basis of training and experience, and have no protection in this respect when employing men; nor have the classers been able to secure differential payment on a similar basis, such as obtains in other industries, so there is considerable room for improvement in this respect. The immediate future promises many reforms and changes in the wool industry, and should include an improvement in this important aspect.

Internal Parasites

Much concern is felt in farming circles because of the serious annual losses among sheep and calves due to the ravages of internal parasites. A bulletin has been prepared to cover all aspects of this problem, including short descriptions of the various common parasites encountered, and a summary of the methods of treatment available to the farmer. This bulletin, No. 171, is obtainable free from the Department of Agriculture at Auckland, Wellington, Christchurch, and Dunedin.

"it has tailed over 13,000 lambs and has never gone better: NO DEATHS after tailing and lambs fatten quicker. Last year we drafted 2035 fats from 1840 ewes, of which 1222 were drafted on 17th December."

The above is from a letter from Mr. Walter Clark, of Woodlands, Otara R.D., who authorises its publication. Mr. Clark's experience is in line with hundreds of other farmers, who find this new, bloodless, humane method of docking with the

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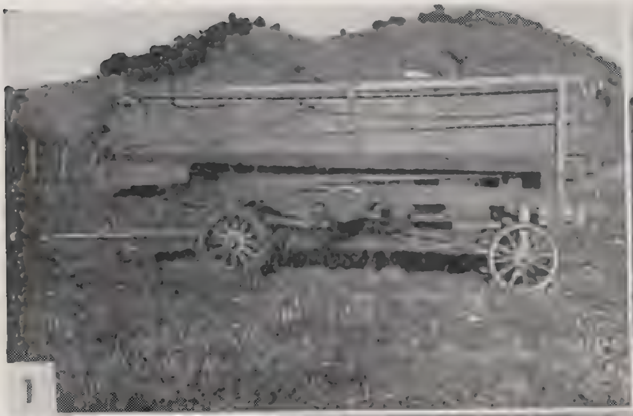

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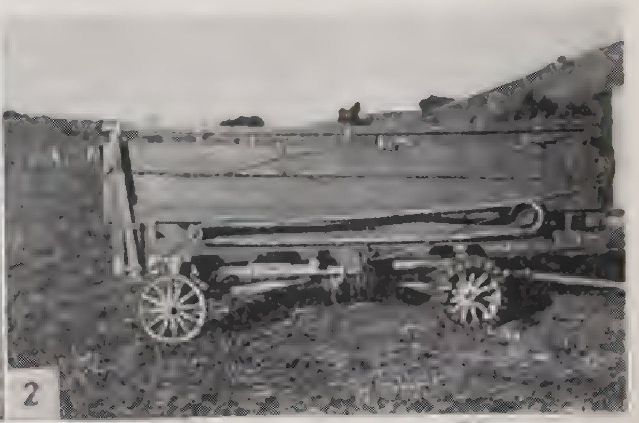

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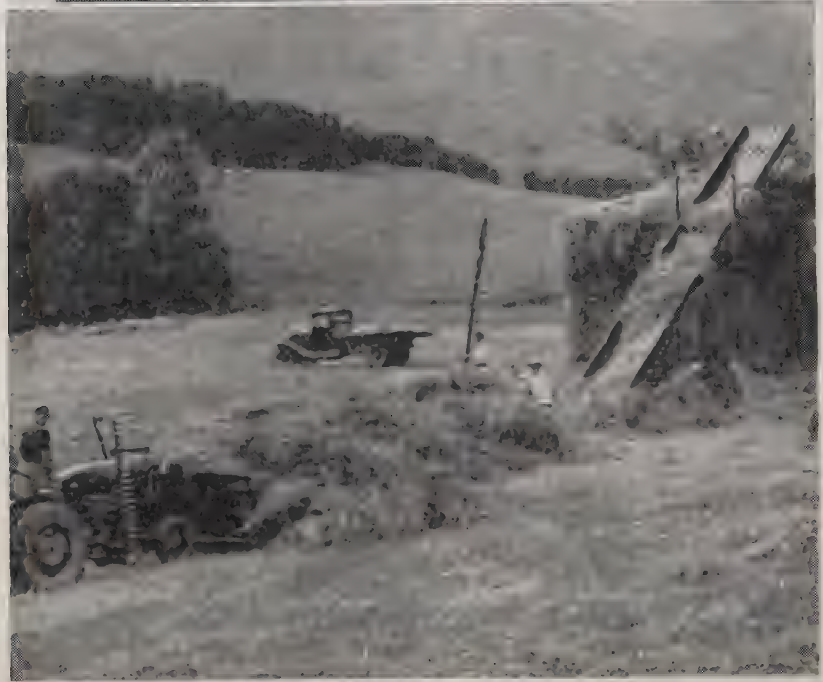
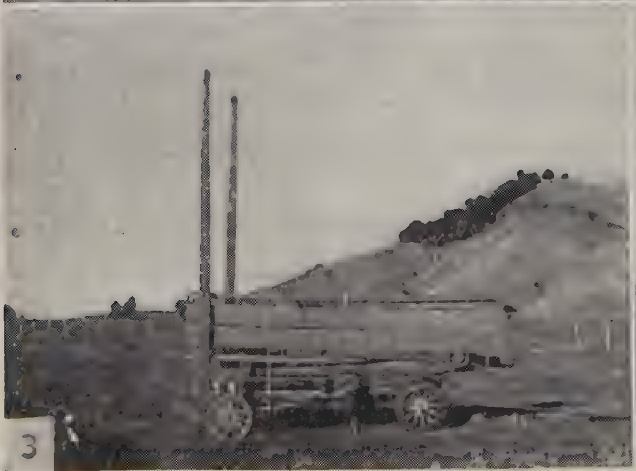


ALTHOUGH the pick-up baler is the most modern machine for handling hay, stacking will always be necessary by many farmers. There are a number of patented designs of stackers on the market, but, while these are efficient, most suffer from the disadvantage that they are cumbersome, and take some time to put in position. The hay elevator described has the advantage that it is fully mobile, it can be ready for work in about 3 minutes after arriving in the paddock, it is easily moved as stacking progresses, and in short is a very suitable labour-saving device.

The machine illustrated, built by Strachan Bros., Ngatimoti, Nelson, is on an old Ford chassis, uses shafting and gears from a worn-out mower main drive, and the elevating handle is from an old separator.

Fig. 1 shows the elevator as seen from the left side (looking forward) folded down ready for travelling, or housing.

At left—The elevator in operation.



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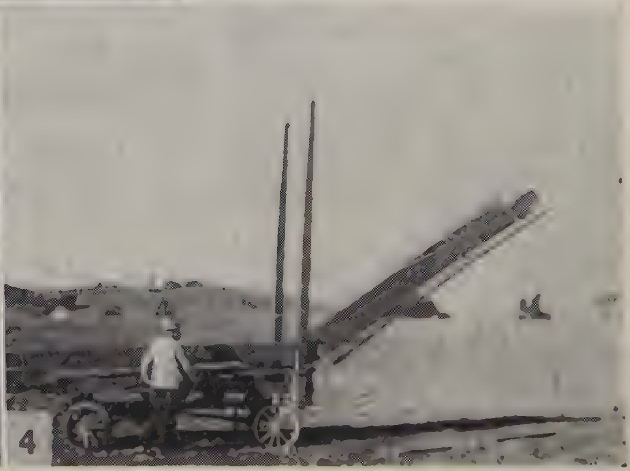

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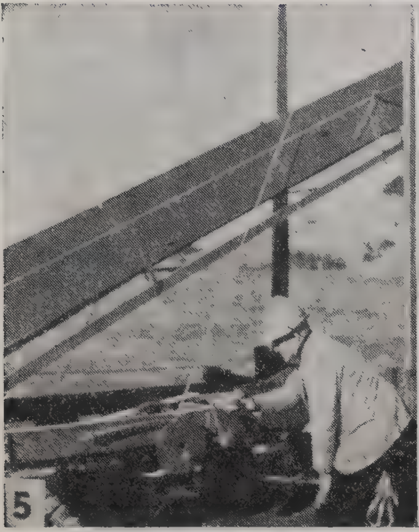
Hay Elevator



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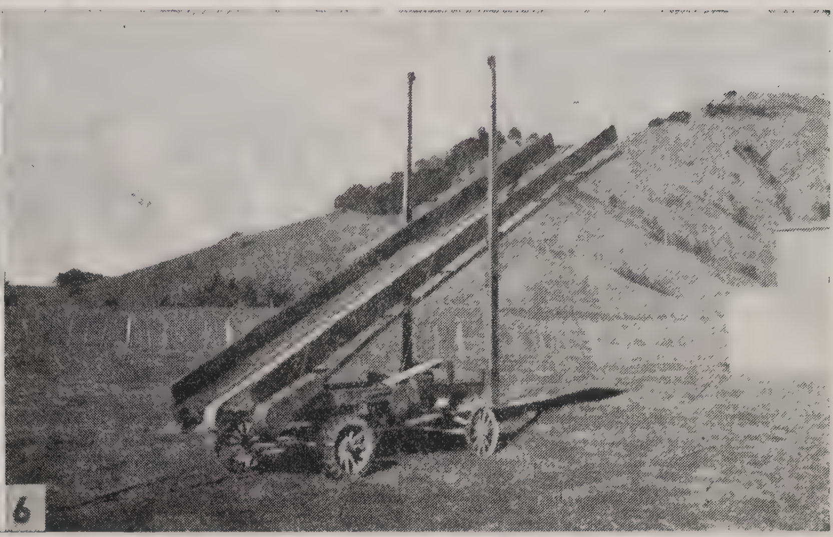

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It will be noted that it is fitted with a tractor drawbar. The ratchet elevating wheel is mid-way on the chassis between the front and rear wheels.

Fig. 2 shows the other side, and the belt drive from the engine to the main elevator gearing.

In Fig. 3 the two lifting or elevating poles have been fitted in their metal guides on either side of the frame. For lifting the two hinged sections apart it will be noted that the wire rope is first attached near the end of the section being lifted. When the top section has been lifted right over, as the operator is shown doing in Fig. 4, a prop is placed under the opened section, and the cable moved to a set of holes nearer the uprights. Then when the crank is turned both sections can be lowered or raised together.

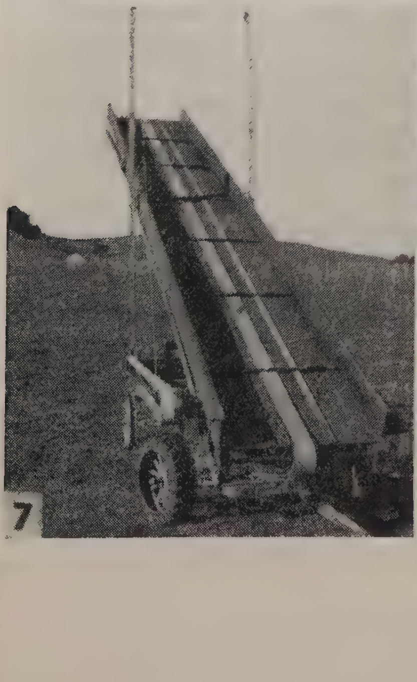
Fig. 5 shows a close-up of the elevating mechanism. Usually it is necessary for a rope to be attached to the top of the section being raised, and this is steadied by another man, as it comes over top dead centre between the two uprights. The reason for this is fairly obvious. With a considerable part of the weight in the air the machine is then in its most unstable form.

Fig. 6 shows the erected outfit, and Fig. 7 the endless 5in. 5-ply canvas conveyor belt to which the elevating battens are attached, approximately 4ft. 2in. apart.

Fig. 8 shows the belt-tensioning gear beneath the top of the elevator platform as it is when in working position. The pulley is in a slide, and a fulcrumed lever can be set where required. The power is transmitted through the lever to the slide (slide end) through two gear wheel segments. A 1½ h.p. engine drives the elevator.

In operation hay is swept up to the elevator and one man with a hay fork directs it forward in a continuous stream on to the endless belt conveyor. The outfit has been used very successfully over several seasons, and there are several other home-made machines working on the same principle and doing good work in the Nelson district.

—*D. M. E. MERRY, Instructor in Agriculture, Nelson.*



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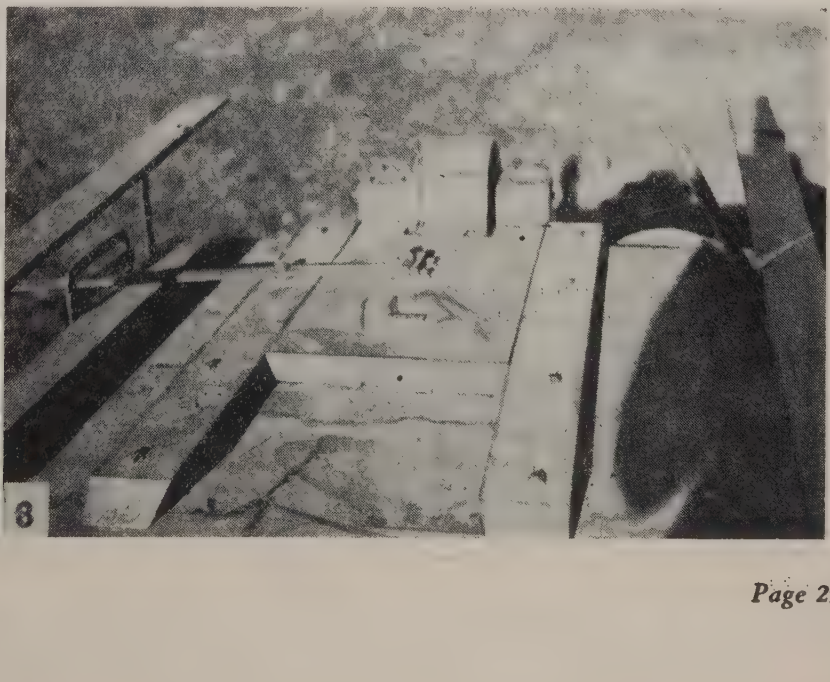

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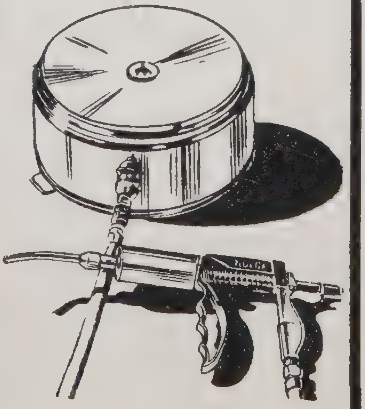

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Barley Growing in Great Britain

BRITISH agricultural practices and results were closely observed by the group of New Zealand agriculturists loaned to the British Government to assist agricultural production in Great Britain during the war. In this article Mr. G. A. Holmes, leader of the group, discusses the wartime boom in barley production and his observations on cropping practices at Home should be of interest to those engaged in cereal production in the Dominion.

DURING the war there was considerable expansion in the acreage sown to barley in Great Britain. Nearly two million acres were sown in 1944, an increase of 115 per cent. above the pre-war average. This expansion, together with a considerable reduction of the alcohol content of beer and a total suspension of distilling from 1940 until October, 1944, enabled Britain last year to be self-supporting in barley for malting purposes. Most of the expansion took place on the lighter soils, either following wheat or in many cases on soils which were too light for wheat. Barley is the favourite cereal crop of the chalk downs which form a large proportion of the arable land of eastern and southern counties. The expansion of acreage has led to the sowing of barley on soils which are not really suited to the crop, and this fact, as well as the growing of the crop by farmers with little experience of it, has led to a good deal of poor-quality grain being put on the market.

Manuring

On many farms the practice of broadcasting fertiliser before drilling the crop is still carried on, and a good deal more potash is used than in this country, this fertiliser being considered a limiting factor on some of the chalk lands. Most of the larger growers drill superphosphate or mixed fertiliser with the seed and are satisfied with the results from this system of application. Lime is applied for the crop where the soil is at all acid, as failures have been noticed under such conditions where lime has not been used. Where barley follows a root crop, as in the old Norfolk four-course rotation, nitrogen may not be necessary, but recent experiments where barley follows wheat have shown very substantial increases from the application of 1cwt. per acre of nitrate of soda or sulphate of ammonia, applied rather late (May) to the growing crop. Application of nitrogen after the appearance of the tillers has actually reduced the percentage of nitrogen in the grain and very substantially increased the crop. Very late applications of nitrogen, i.e., at flowering time or later, have increased the nitrogen in the grain without an increase in the yield.

Time of Sowing

The spring weather in Britain often tends to be dry and windy, so that late-sown barley may remain stunted and give a light crop with a high percentage of steely grains. The best malting samples have been obtained from late winter sowings, while there is a growing tendency on light, sharp land to sowing during the first three weeks of December. This system has the advantage of spreading the work on the farm, as it can occupy the tractors and drills after wheat sowing is completed. It also results in the crop being about two weeks earlier in ripening, and therefore getting normally drier harvesting weather. Seedings of up to four bushels per acre may be used to offset the risk of some of the seedlings being killed out by frost-lift. On light land in Hampshire it is considered that December sowing of barley has increased the yield up to 50 per cent. by comparison with sowing in early March. It is important that the ground should be worked early and given several weeks to mellow before the barley is sown.

Seed Rates

It is still common to find farmers sowing 3½ to 4½ bushels per acre, but there is strong evidence in favour of lighter seedings, particularly where the land is reasonably clean of weeds, and where sufficient fertiliser is used.

The newer varieties of barley are strong-tillering, while the use of organo-mercury dressings practically eliminates the loss of seedlings from leaf stripe.

Varieties

Plumage-Archer has usually proved the best yielder, and the best malting quality of any variety. Although recommended for the more fertile soils, it often out-yields other varieties on the lighter soils, providing the season is a good one.

Beaven's 1943 selection was the best seen when considering quality as well as yield.

Spratt-Archer is also widely grown and may yield slightly better than Plumage-Archer in some districts. The old variety Spratt is still popular on fenland soils.

Two winter varieties—Camton and Pioneer—have been introduced. the former being purely a feeding barley and the latter of rather lower malting quality than Spratt-Archer or Plumage-Archer.

The Danish variety Kenia is not grown to any great extent, but may increase in popularity on account of its suitability for combining and its resistance to lodging.

Harvesting

Under wartime conditions of labour supply no objections have been raised by the maltsters to direct heading of barley. It is possible in most parts of England to leave the crop standing until it is dead ripe without any risk of shattering. The combine must be operated carefully, reducing the speed of the drum and opening the concave from time to time as the day gets hotter. The increase in the number of combines has led to difficulties in

Threshing barley from the windrow.

arranging for the drying of the grain by the maltsters when such a large tonnage must be taken in over a comparatively short period. For this reason many of the larger growers have installed their own drying plants, and operate these concurrently with the harvesting. The moisture content is extremely variable, ranging from 16 to 24 per cent. of moisture actually in the grain. It is considered necessary to reduce the moisture content to below 13 per cent. for storage in bins or silos and to 15 per cent. or less for storage in sacks. The drying must be carried out very carefully at temperatures not exceeding 120°F., and with cooling of the grain after drying.

Marketing

In the absence of control, very high prices were ruling for the best crops of barley in 1942, and particularly for seed barley. In 1943 maximum prices were fixed with slight variations from month to month, the first-grade maximum price being 25/- per cwt. for some months after harvesting, rising to 27/6 per cwt. in the spring and summer months. Grain is purchased by corn merchants, mostly after inspection of the sample and with some knowledge of the type of soil on which it has been grown, as well as of the capabilities of the grower. The merchant selects lines suitable for seed purposes and re-sells malting grades to the maltster. The price of feed grade barley has been fixed at a maximum of 14/6 per cwt., so that there is every inducement to the grower to exercise the utmost care in order to have his sample accepted for malting.

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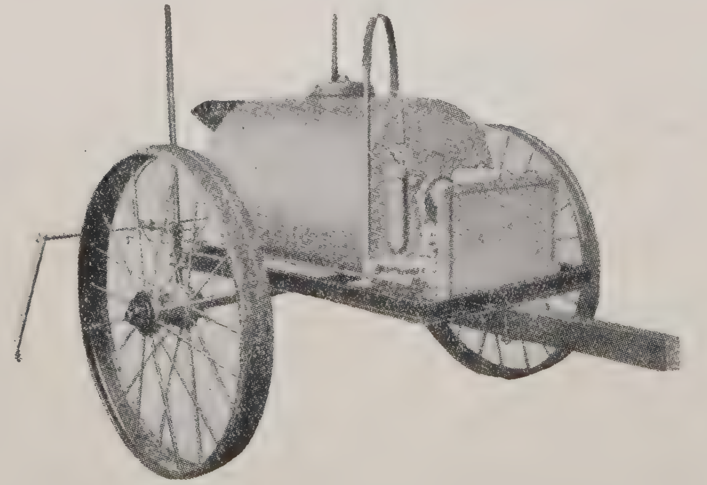

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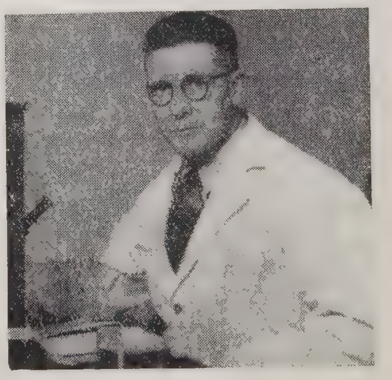
New Superintendent

WALLACEVILLE ANIMAL RESEARCH STATION

DR. I. J. CUNNINGHAM, B.V.Sc., M.Sc., Ph.D., who has been Chief Biochemist at the Wallaceville Animal Research Station since 1939, has been appointed Superintendent following the resignation of Dr. C. S. M. Hopkirk to accept an appointment with UNRRA.

Dr. Cunningham was born at Mangatainoka in 1905 and was educated at the Pahiatua and Dannevirke High Schools. In 1923 he joined the Public Trust Office as a cadet, but a year later was transferred at his own request to the Chemical Laboratory of the Department of Agriculture. During this time he studied at Victoria University College, where he graduated M.Sc. with first-class honours in chemistry. In 1929 under an arrangement between Great Britain and New Zealand for an exchange of research workers he went to the Rowett Research Institute, Aberdeen, where he specialised in nutritional work. During this time he completed his Ph.D. degree with a thesis on the role of copper in nutrition.



Returning to New Zealand in 1931, he again took up his work at Wallaceville as Research Officer in Animal Nutrition. In 1936 he was awarded a veterinary science bursary and in 1938 graduated B.V.Sc. at the Sydney University. On returning to New Zealand he was appointed Chief Biochemist.

Dr. Cunningham has been responsible for discovering the existence and methods for controlling copper deficiency in sheep and cattle in New Zealand. Approximately half a million acres are affected with this deficiency, which is responsible for substantial annual losses to farmers. He has also been prominently associated with investigations into facial eczema, vitamin deficiencies, grass staggers and milk fever in dairy cattle, and poisonous plants.

VETERINARY NOTES

Administering Medicines to Livestock

THE most common method of administering fluids to livestock is by the mouth from a bottle. If many animals are to be drenched, it is advisable to have the bottle cased in leather, as this may prevent an animal having its mouth badly cut by broken glass. It may also prevent the loss of a bottle if the patient becomes unruly.

In drenching a cow the operator should stand on the right side of the cow with his left arm over the nose and the left hand firmly grasping the upper lip. He should then insert the neck of the bottle half-way into the right side of the mouth and allow the fluid to run on to the middle of the tongue. The head should be raised slightly above the horizontal to assist the passage of the drench to the pharynx. If the animal should attempt to cough, the head should be released temporarily. The fluid should be allowed to flow slowly from the bottle until swallowing takes place.

Assistance

If the animal is very restive, an assistant may help to steady the head by holding the horns, but the animal's breathing should not be interfered with during the operation. When a horse has to be drenched a loop of thin rope is run under the nose-band of the halter into the mouth. The end of the rope is thrown over a beam and the lips drawn out of the loop to prevent injury. If available, a drenching bit may be used. As the drenching of a horse is not generally favoured, medicines are given to horses more commonly as balls, boluses, capsules, and electuaries.

The animal should be in a stall or in a corner so that it cannot run backwards. The head is then raised slightly above the horizontal and the fluid slowly poured into the mouth. Immediately lower the head if coughing takes place. It is **not** a good plan to rub or tap the throat to induce swallowing. A better method is to push the end of the halter shank back among the molar teeth to induce chewing, which then induces swallowing.

In drenching a pig it is a good plan to place an old shoe, with a hole cut in the toe, in the mouth and pour the fluid into this. The pig will chew on the shoe, and the fluid runs back into the mouth through the hole in the toe. Fluid can also be poured through a rubber tube or hose-pipe from a funnel. The hose-pipe is placed in the pig's mouth, and the fluid runs into the mouth. The pig usually chews the hose and swallows.

Drenching Sheep

Sheep are more easily drenched, but it is bad practice to sit the sheep on its haunches. Straddle the sheep at the shoulders, or have it in a narrow race, and lean over the side. The mouth can be opened by the left hand going round the lower jaw with the thumb inserted into the mouth. The use of mechanical dosers is increasing, but many owners do not possess them.

When using the various types of drenching gun on the market at the present time it is necessary to see that the nozzle of the gun does not injure the inside of the sheep's mouth. Many guns are now fitted with protective rubber to prevent injury, or the nozzle is slightly curved and blunt for the same purpose. It is easy to cause severe abscess formation in the gum and cheek if the point of the nozzle injures the lining of the mouth, especially when drenching with solutions containing copper sulphate or other worm medicines.

In drenching a dog the main thing is to see that he does not bite. Apply a clove hitch round the jaws, and tie it at the back of the head. Pull out the angle of the lips, and pour the fluid into the pouch thus formed.

Disposal of Carcasses On the Farm

FROM a sanitary point of view no carcass should be left unburned in the open on the farm. Blowflies breed very freely on such carcasses, and may cause some considerable loss through sheep and lambs getting "blown" and maggoty.

The following is a simple and cheap method of burning a carcass where the necessary wood is available.

Two trenches are dug crosswise, each being up to 7ft. long, about 15in. wide, and 18in. deep at the intersection, becoming shallower towards the ends.

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The earth dug from the trench is piled at the angles of intersection to provide support for two pieces of railway iron or the chassis of an old motor-car, on which the carcass rests. Fuel is first placed at the intersection of the trench, and the carcass is placed on the top of the frame. A good draught of air comes down the trench, and the carcass can be entirely consumed provided there is an ample supply of fuel.

Sheep carcasses may be readily disposed of in this way, but the destruction of carcasses of cattle and horses is more difficult because of the very large amount of fuel that is necessary for complete burning, and burial may be found more satisfactory.

The method of disposal, whether by burial or burning, will depend upon the nature of the ground and the availability of a plentiful supply of cheap fuel. From a sanitary and hygienic point of view, in regard to the health of animals on the farm, one or other method of disposal should be practised on every farm.

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Answers to Correspondents

Blood Scours in Calves

"Enquirer," Edgecumbe:—

Every year I experience a good deal of trouble with blood scours in calves, and I invariably lose one or two valuable calves, no matter how much care I take. When the calves attain the age of two months they apparently are not affected. I have changed the calf paddocks around, and this year have put the calves on a paddock that has had no young calves on for six years, yet still the disease has broken out again. Is there any medicine that could be put in the milk to counteract the germ until they are two months old?

LIVESTOCK DIVISION:—

In some cases blood scours is due to the presence of minute parasitic organisms (coccidia) which damage the lining of the gut and produce haemorrhages. This is not likely to be the cause in your calves, as coccidiosis is usually seen in older calves from two to 12 months old; also it is more common in old calf paddocks. In other cases it may be of the nature of dysentery, following undue scouring set up by indigestion. The scouring should be prevented in the first place by care in feeding, regulating the amount of milk (which should not be more than a gallon a day, in the first fortnight, divided into two or, better still, three feeds), and strict cleanliness of all utensils and pens or yards. Where scouring does occur a small dose, say, 2oz., of castor oil or raw linseed oil, with a level dessertspoonful of baking soda, shaken up with 2 or 3oz. of lukewarm water, is suitable. Milk should be cut out for one feed, allowing a little water with a teaspoonful of salt.

In view of the care you apparently take in feeding, it may be that the trouble is not due to indigestion, but to the condition of the bowel wall, and you might find benefit from limewater, which would tone up the bowel. Stir up a shovelful of lime, preferably burnt or slaked lime, in 4 gallons of water with 1lb. molasses. Allow to settle and add the clear top portion to calves' milk at the rate of a breakfast cup per feed for each. Commence this as soon as calves begin to be bucket fed.

For early spring calves that are valuable, the addition of codliver oil, at the rate of a dessertspoonful per feed, for the first three weeks would be justified, and should help this condition.

Foot Trouble in Rams

"J.E.McK," (Middlemarch):

I have several 2-tooth Romney rams which some time ago began to scald the cleft of the hoof. I applied power kerosene to those affected and shifted them to a drier paddock. Five days later one of them was "down" with a badly swollen foot and leg; the latter was soft and puffy to above the knee joint. The others had not improved, so I put seven of them on the grating in the shed and treated them with power kerosene. The ram with the swollen foot and leg died that night, and I continued to treat the other six for a week, at the end of which time five were cured and able to go out again. The sixth had one foot scalded and a small open sore had started when I started the treatment, and a swelling developed in the foot until in a little over the week it was three times the normal size, with a very small discharge of pus from the small sore. It is not a case of ordinary foot-rot, as the hoof appears quite sound. I have now given up the kerosene treatment and for the last four days have applied a bread and soap poultice once a day, which has lessened the swelling and drawn a great deal of pus from the foot. I doubt, however, if it will effect a complete cure. Could you tell me what this trouble is and the correct treatment for it? I assume that the ram I lost died of blood poisoning. Do you think that is probable?

LIVESTOCK DIVISION:—

The cases of foot trouble that have occurred among your rams are, as you suggest, not the usual type of foot-rot, but a type in which common pus-forming germs gain entry to the foot through the scalded area or through minute wounds in this softened tissue. The germs then commence producing pus within the foot, and as the pus accumulates it becomes forced by pressure through the tissues of the foot. The pus cannot escape through the walls or the sole of the hoof, and so it seeks the line of least resistance, passing up the hoof finally to burst through around the upper surface of

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the hoof. In treatment of these cases poulticing or fomentation is very useful. Fomentation is probably the better method, for although it takes more time, recovery is generally faster. The affected foot should be immersed in hot water (not hot enough to scald), to which a reliable disinfectant has been added. Fomentation is used for the purpose of bringing the abscess formation to a head. The abscess will burst and so provide drainage to the foot, or if it shows no tendency to burst, the point at which the pus is near the surface may be opened by making a cut with a clean, sharp knife. Once drainage for the affected area has been provided, the lesion is generally on the way to recovery. After the fomentation treatment the foot should be dried and the affected area painted with weak tincture of iodine, or acriflavine solution, 1 in 1,000. If a small syringe is available, acriflavine solution may be injected into the openings from which the pus is discharging. If possible the fomentation treatment should be carried out three times daily, and until recovery the rams should be kept on grating and hand fed. The majority of cases will recover under treatment, but occasionally animals do die from severe infection or develop a painful arthritis and permanent lameness.

Black Pox in Cattle

"A.S. McK.," Whitianga:

I am having considerable trouble this year with black pox in my herd. Could you advise me how to keep the teat canal open, and also a good reliable ointment for same. The ointment I am using is successful in some cases but not in others.

LIVESTOCK DIVISION:—

The following dressings are recommended for the treatment of black pox:—

1. A solution of 3 per cent. of salicylic acid in glycerine.

2. An ointment made as follows:—

Salicylic acid	2 drams
Benzoic acid	1 dram
Lanoline	6 drams
Petrolatum	1 ounce

If this ointment is applied to the end of the teat after milking, it will prevent the formation of hard scabs and soften them if they are present. In some cases ordinary household vinegar has given good results. This is used by either dipping the teat into a vessel containing the vinegar or by painting on the affected parts twice daily.

This disease is contagious and affected animals should be the last to be milked.

Under no condition whatsoever should a teat siphon be used to withdraw milk, as it is almost certain to produce mastitis by carrying infection from the affected tip.

Slaughterings of Stock

THE following returns of slaughterings of stock at meat export slaughterhouses and abattoirs for the months May-July, 1945, have been compiled by the Livestock Division:—

District.	Cattle.	Calves.	Sheep.	Of which Ewes were	Lambs.	Pigs.
North Island.						
Meat-export Slaughterhouses—						
Auckland	87,880	127,757	84,351	46,441	134,696	52,311
Poverty Bay-Hawke's Bay	29,089	7,034	146,375	71,348	220,418	6,778
Taranaki-Manawatu ..	50,488	23,649	98,298	47,659	217,032	29,838
Wairarapa-Wellington ..	24,686	2,380	75,714	33,234	140,919	6.788
Totals	192,143	160,820	404,738	198,682	713,065	95,715
Abattoirs	30,776	7,711	141,407	26,033	20,522	8,401
North Island Totals ..	222,919	168,531	546,145	224,715	733,587	104.116
South Island.						
Meat-export Slaughterhouses—						
Nelson-Marlborough ..	1,185	4	12,878	7,801	63,452	3,409
Canterbury	6,046	4,650	185,411	162,243	719,890	7,306
Otago-Southland	10.942	203	177.220	159,307	740,991	1.774
Totals	18,173	4,857	375,509	329,351	1,524,333	12,489
Abattoirs	14.709	2.209	68.346	26,482	8,132	2 745
South Island Totals ..	32,882	7,066	443,855	355,833	1.532,465	15.234
Dominion.						
Meat-expt. Slaughterhouses	210,316	165.677	780.247	528,033	2,237,398	108,204
Abattoirs	45,485	9.920	209.753	52,515	28.654	11.146
GRAND TOTALS ..	255,801	175,597	990,000	580,548	2,266,052	119.350
Same Period, 1944— Meat-export slaughterhouses and abattoirs ..	220,391	149,219	992,194	633,426	2,158,784	153,142
Same Period, 1943— Meat-export slaughterhouses and abattoirs ..	237,430	193,908	655,211	378,881	1,501,538	86,551

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LUCERNE

The sowing of a further 15,000 acres of lucerne is more than justified in this country. There is no other crop of which additional acreage would mean such a general overall increase in production. In those districts where soil and climate are suitable lucerne should be a standard forage crop.

1. *All classes of stock thrive on lucerne.*
2. *Four cuts annually will give from 12 to 20 tons of first-class hay per acre.*
3. *Prepare the land now for spring sowing.*
4. *Give a liberal application of lime on the furrow.*

Silage

WITH the advent of spring every opportunity should be taken to conserve as silage or hay any surplus pasture growth. The carrying capacity of any farm is governed by winter carrying, and the foundation of high production of dairy products, meat, and wool is largely based on the provision that can be made over this period. Hay is a general requirement for supplementing low pasture production and for balancing rations of such fodders as roots and greenfeed cereals. However, silage has become a feature of intensive grassland management on many North Island dairy farms, as is indicated by the fact that of 53,000 acres of pasture ensiled in the Dominion in 1943-44, 96 per cent. was in the North Island.

The making of hay and silage is essentially associated with pasture management, efficiency in control of spring growth of pasture, and also in levelling out pasture production to coincide more closely with the requirements of stock. Saving the earlier surplus growth of pastures as silage avoids what may become an embarrassing and wasteful surfeit as the season advances, because in a humid climate, under damp soil conditions, with weather often unsettled, early haymaking may be a very risky proposition.

On the dairy farm ensiling is easily carried out between morning and afternoon milking periods as part of the farm routine. Extra labour is not generally required, except on one-man farms, while the work is not laborious if modern methods are used and suitable equipment is available.

Ensiling should be commenced shortly with growth from earliest-closed pastures, and work should be carried on steadily in order not only to conserve available material correctly and before it becomes too mature, but also as a measure of pasture control and to promote a strong aftermath growth for summer grazing. If pasture is allowed to become rank over summer, the sward tends to open up and growth later in the season is greatly reduced.

Time to Cut

The time for cutting pasture for silage is during that period when the majority of grasses are coming into flower. After flowering decline in quality is rapid. Because pastures are frequently cut at too late a stage of maturity, the resultant silage is often not of sufficiently good quality as a producing fodder and cannot maintain milk production in late summer, being more suited for winter maintenance.

The first cut of lucerne, which is usually weedy, is very suitable for converting into silage, along with surplus pasture growth. The first cut with established stands is usually ready during November, when the young shoots of the next growth appear on the lucerne crowns. Oats sown when cultivating old lucerne stands in the autumn improve the silage by balancing the high protein content of the lucerne.

Ensiling Process

Curing of the material will depend on the type of herbage utilised, maturity at cutting, the amount of wilting allowed after cutting, satisfactory building with regard to even consolidation and regular additions of material, with finally sufficient earth for weighting and sealing. The aim is to produce fruity green-yellow silage with a minimum change from the original material. However, fermentation and subsequent rises in temperature must occur, and are dependent on the presence of air remaining with the material. Added pressure excludes air in the bottom layers of material and lowers the temperature. Silage will be sour unless the temperature is allowed to rise first in the bottom layer, before controlling the temperature by the additional weight of fresh material. After building the first layer to a height of about 8ft., about 24 hours should be allowed with normal herbage for a suitable temperature to be reached. Subsequently building should be continued daily with an equal or greater amount of material to completion, an average stack taking about four days to build. Consideration should be given to the moisture content of the material, a wise policy being to avoid building the bottom layer with very succulent herbage, at least without wilting, as the rise in temperature will be retarded and soluble nutrients oozing out of the silage will be lost.

If possible more mature herbage should be used for the bottom layer. It should be borne in mind in building later layers that mature herbage packs less tightly than young growth. Having more air but less moisture, such material will readily overheat, with formation of dark brown or sweet silage of inferior feeding value and palatability, unless building is rapid.

Daily building tends to maintain chemical change of soluble carbohydrate at the lactic acid stage without further breaking down. Molasses at about 1 to 2 gallons per ton mixed with an equal volume of water aids lactic acid formation, and may be used to advantage.

Storage

Silage is made in trenches, pits, silos, and stacks. Convenience for

The round stack is a very convenient way of conserving material, using an elevating mast with boom and grab.

building and feeding out may determine the method adopted, but silage should not be made too close to the homestead or dairy. In undulating country trenches may be cut through ridges, or long shallow trenches scooped out on level ground, if drainage is satisfactory. Trenches may be made 8ft. deep in the middle, by 8ft. to 10ft. wide, allowing a batter of 1 in 8 for the walls, while the earth displaced may be used to build up the sides and for covering. Green material may be swept into the trench and dropped where required by driving over the material. Tumbler sweeps or a hay loader and truck cut down labour.

Pits in hillsides or rises allow for easy filling from the top and later handling of the silage from a lower level. In many cases the round stack may be the most convenient way of conserving the material, using sweeps and an elevating mast with boom and grab.

If the watertable is sufficiently low, it is very convenient first to remove the soil down to about 3ft. for the site of the stack. This has several advantages and reduces waste. The stack is easier to build, being lower, cannot spread during building, and is more stable. The earth removed is convenient for placing on top of the stack and for filling manure bags required round the edge to keep the covering soil in place. In building the stack the sides should be kept firm and the centre level, but extra material must be added round the sides before covering. The earth should be put on immediately all material has been stacked.

Utilisation

Silage may be used after a month following ensiling when the temperature is normal, but, on the other hand, it will keep for several years without deterioration if properly made and sealed from the air. Up to 80lb. per day may be used by the dairy cow. Silage should be fed preferably after milking. As a winter supplement to ewes 2 to 3lb. may be sufficient with grass, but a full ration is double this quantity and should be supplemented with hay or chaff.

Maize

THE target for this season's maize crop for grain is 12,000 acres. Planting should take place from mid-October to mid-November, as the ground is warm and danger from frost is usually over by this time. As a long growing season is required, late sowings of high-yielding late varieties usually result in reduced yields and pinched grain. Maize is a sub-tropical plant, thriving under warm, humid conditions, and prolonged spells of cold weather or unseasonable frost tend to affect yields seriously.

The main maize-growing areas are the Gisborne district and parts of the Bay of Plenty coastal strip where long warm summers are experienced.

The Gisborne district in 1943-44, with 53 per cent. of the maize acreage, threshed over 63 per cent. of the grain total. On the fertile Gisborne flats repeated cropping with maize is possible, but eventually the ground becomes weed infested, when a change should be made. Under such conditions spring-sown barley might be grown for grain, and the area sown down to pasture in the autumn.

Popular Varieties

Due to its general suitability the maize variety most popular in the Gisborne district in the past has been Horsetooth. This variety, however, has become largely crossed with Marigold. Being a late-maturing variety, it should be planted early enough to be sufficiently matured before the occurrence of autumn frosts. At the present time an imported variety from U.S.A. is used extensively. In the Bay of Plenty Horsetooth and Motiti are favoured in the early districts on the light, rolling pumice country, in the vicinity of Tauranga and Te Puke, while on the river silts and loams in the Whakatane and Opotiki districts, where the growing period is shorter, the earlier-maturing Early Butler is more generally planted. Silver Queen as an early variety is preferred to Early Butler at Gisborne, while Mari-

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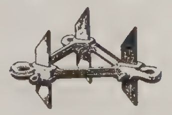

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Weed control and cultivation close to the young plants are simplified in this check-planted maize crop.

gold, which is rather earlier maturing than Horsetooth, is also popular, especially for rather wet paddocks liable to flooding.

Sowing Methods

The first essential for good yields is thorough preparation of the ground for a deep, well-prepared, even seedbed. Sowing methods vary in different localities. Planting is conveniently carried out with a maize planter drilling two rows at a time, 2ft. 10in. being a suitable spacing for cultivation and growth under good conditions.

About 14lb. of seed is required, with grain dropping about every inch in the rows. The seed is drilled 2in. to 4in. deep to be sufficiently well down in moist, warm soil, without being too deep. Check planting is advisable when weed competition is feared. This is carried out with an attachment on the maize planter, through which passes a wire stretched across the paddock. The wire is knotted at 10in. intervals, and, as the planter proceeds, each knot releases a spring allowing three or four seeds to be planted. The wire is moved across 2ft. 10in. at each end alternately as the planter proceeds along the line left by the marker until planting is completed.

Fertiliser

On rich ground maize is usually planted without fertiliser, but in normal times superphosphate and blood and bone in equal parts, and sown at 2cwt. per acre, are frequently used on lighter land.

After Treatment

When the ground has been rolled before sowing, and is weedy, harrow five to seven days after planting, or when the maize is starting to shoot. The ground may be rolled when maize is about 2in. high to break down clods, which, however, should not be present. Rolling may be followed by light harrowing to check germinating weeds and reduce evaporation of moisture.

Scarifying should commence about 10 days after the seedlings appear, and continue until the crop is about 2ft. high. Special maize scarifiers are in common use and enable the ground to be cultivated close to the young plants. The first scarifying should only be sufficient to kill weeds without covering the young plants. Scarifying should be discontinued when the fibrous roots are showing extensively, and the last scarifying may only be down the centre between the rows. With check-planted crops weed control is simplified, while hand hoeing may have to be undertaken in other crops in weedy ground.

After the cobs have formed some growers stock their maize areas with a few cull lambs per acre. These eat the lower leaves, trample weeds, but also eat portions of the lower cobs.

Utilisation

The crop is very valuable to the dairy farmer in maize-growing districts, not only as a safeguard against an acute summer greenfeed shortage, but principally as grain for wintering pigs and for feeding farm poultry.

The cobs are maturing up to May, and pulling is done by hand and at leisure without need of harvesting equipment. In favoured districts maize, cattle pumpkins, and a small patch of roots spread the labour and cover the winter feed requirements of the dairy herd and pigs in a very satisfactory manner.

Small Areas of Maize

While Poverty Bay and the Bay of Plenty are the recognised maize-grow-

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ing districts in this country, the crop can be grown successfully in many other North Island districts. It is recommended that for a season or two at least dairy farmers who run pigs as a sideline and poultry farmers should give consideration to planting a small area in maize. Feed grown on the farm is the cheapest feed in the long run, and a great deal could be achieved by a large number of small areas.

Maize for Greenfeed

A small amount of maize is grown for summer greenfeed in the North Island, although in the grain-growing areas the crop is harvested as much as possible for grain. A portion of the greenfeed crop may be used to keep up milk production in a dry season, while many farmers cut out suckers and blind stalks for cow feed.

Hickory King and Horsetooth are the varieties commonly sown for greenfeed. Seeding should be at the rate of 80 to 90lb. per acre if broadcast, or 60 to 70lb. per acre through every coulter or second coulter of the grain drill.

Main Crop Potatoes

FLOODS, late blight, and inclement harvesting weather conditions have made the past season in many localities an unfortunate one for potato growers. This season 37,500 acres is the objective for the Dominion's requirements of table and seed potatoes and for supply to the Pacific zone.

Main potato crops in many districts are suitably planted about mid-October, coming through the ground when normally all danger from frost is past.

Certified Seed

Principally because of its cooler climate, potatoes propagated in the South Island remain freer from virus disease than potatoes grown in the North Island, where degeneration due to virus disease may be very rapid. For this reason certification of seed potatoes is almost entirely confined to the South Island. Canterbury grows over half the total Dominion acreage of potatoes, and regular North Island growers wisely obtain fresh stocks of southern Certified seed each season. Growers' crops in the varieties certified are grouped into Certified Mother Seed and Certified Commercial seed, being classed according to cropping power and relative freedom from virus diseases. The highest classed Mother Seed as listed by the Department of Agriculture should be procured by South Island growers for recertification, while the Certified Commercial lines are quite satisfactory for North Island seed requirements.

In order that growers may obtain seed of a required size, grading figures indicating the size of the tubers are entered on the tag attached to each sack of Certified seed. These figures are arrived at by weighing the smallest 16 and the largest 16 tubers of 100-tuber lots drawn at random from each grade of seed. A grading figure of 3-5oz. indicates that the average weight of the smallest 16 tubers is 3oz. and of the largest 16 5oz. The seed required per acre depends on the size of seed planted, 3oz. seed (grade 2-4oz.) working out at 19cwt. per acre for 30in. rows with sets 18in. apart. A 2-4oz. grade is suitable for the mechanical planter, but larger-sized seed is apt to be crushed, unless cut. Some varieties are less suitable than others for cutting, especially under dry conditions. Under-grade seed (1-2oz.) from Certified Mother crops has been tagged, but again

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under dry conditions may prove less satisfactory than a larger grade of seed.

Soils and Preparation

Potatoes are grown on a variety of soils, deep, fertile sandy loams being best suited for the crop, while wet, poorly-drained land or heavy clays are unsuitable. If the ground is very weedy, stiff, or stony, harvesting operations may be difficult. The best place in the rotation is after grass, but ploughing must have been sufficiently early to allow for thorough disintegration of the turf. Although a deep, friable tilth is required, a fine condition of the surface is unnecessary at planting time, but the seed must be well covered.

Planting

Potato planters are now in common use among commercial growers, but unless the ground has been worked deeply enough, the planter tends to leave the sets at too shallow a depth.

When using the plough every third furrow is planted, making the rows approximately 30in. apart with sets 4in. to 5in. deep and tubers spaced 15in. to 18in. apart in the rows.

If a double moulder plough is used for planting, and the bottom is too consolidated, this should be loosened, when tubers will remain evenly spaced during hand planting and will root better. After planting the rows are either split with the same plough or the area harrowed across the rows. Harrow as soon as possible to prevent the soil from drying out in the open drills.

After Cultivation

About 10 days after planting harrow to kill germinating weeds and break any surface crust. Actually a last harrowing may be undertaken when the crop is nearly 6in. high, after which regular cultivation between the rows with a suitable cultivator is necessary. As the plants develop the widths of cultivation must be narrowed to avoid injury.

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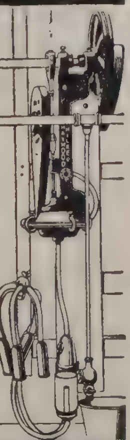

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Moulding should be carried out gradually, commencing towards flowering time, with slight hilling of the rows for protection of the developing tubers.

The final hilling may be carried out with the moulder attachment on the cultivator, or with a moulder plough when the tops are beginning to touch in the rows.

The final moulding should have a fairly wide base, tapering to an edge at the top. Judgment is required as to the degree of moulding required. New tubers develop over the old set and unless sufficiently hilled will become exposed to the elements and attack from potato moth and infection from late blight spores washed off the foliage. Excessive hilling, on the other hand, tends to intensify the effects of dry weather and reduce the root system.

Fertiliser

The 3cwt. ration of superphosphate is adequate, but the addition of 1cwt. of sulphate of ammonia or blood and bone may be warranted. Fertiliser should not be broadcast, but sown with the seed in the drills. Sulphate of potash is sometimes used, and is said to improve quality, but rarely has it been known to increase yields appreciably. Lime has a tendency to encourage scab diseases, and unless the soil is extremely acid, its use is not recommended. If the land is in really good heart, manure may have no effect.

Main Crop Varieties

In the North Island Aucklander Short Top (Suttons Supreme) is the most popular variety. Being moderately early, the crop may be lifted at the end of March in time for autumn sowing of grass, an advantage not possessed by later-maturing varieties.

In the lighter Canterbury soils Aucklander Short Top and Dakota have proved their value. Inverness Favourite and Arran Chief are usually grown on the heavier soils. In Otago and Southland King Edward is a popular variety.

Spraying for Late Blight

Late blight was widespread towards the end of the growing period last season. Warm, muggy conditions favour the fungus, which may spread with surprising rapidity. In most districts the work involved disposes the majority of growers to take the risk of blight without spraying, but they carefully mould their crops to reduce infection among the tubers.

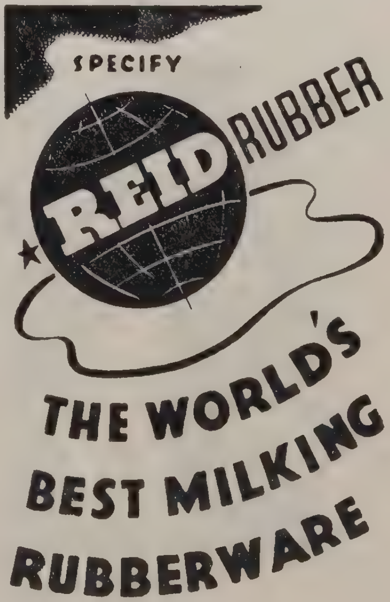
Experience during the past season would indicate that in the moister districts spraying would be advisable to safeguard crops of certain varieties which are more susceptible to late blight attack, for example, Jersey Bennes and King Edward, especially when these are being kept for seed or for early marketing.

Cattle Pumpkins

PUMPKINS grow well under similar climatic conditions to maize. Both crops are very susceptible to frost, and should be planted only when this risk in the locality is past.

Ground intended for pumpkins should be well drained, early ploughed, and well supplied naturally with organic matter. If necessary, farmyard manure may be used in the hills, but 2cwt. of superphosphate per acre should be broadcast over the area to be planted.

Pumpkins are planted in groups of 2 or 3 seeds 8in. to 12in. apart each way, about 2lb. of seed per acre being required. Regular growers carefully select their seed from deep-fleshed, long-keeping pumpkins, but unfortunately school children collect seed without regard to these qualities. Seed should be obtained only from a reliable source.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In the early stages discing between rows will check weed growth, retain soil moisture, and assist secondary rooting of runners. Some cutting of runner tips is immaterial, but closer cultivation may be carried out by moving young runners aside.

The secret of success is to ensure that the plants grow vigorously from their first appearance. The average yield is in the vicinity of 10 tons per acre, but yields of over 40 tons per acre are possible. The crop should not be gathered until the vines have died down; also short stalks should be left attached to the pumpkins so that they will keep better.

For dairy cows, pigs, and sheep, pumpkins are excellent as winter feed before mangolds, which will keep well into spring. An advantage with pumpkins is that they can be left out on grazing areas, and sufficient split daily for requirements of stock. When a pumpkin paddock is stocked by sheep the soft pumpkins, weeds, etc., are consumed first before daily splitting is required.

* * *

Mangolds and Sugar Beet

MANGOLDS are the highest-yielding and most reliable of the root crops; they are excellent for winter and early spring feeding to supplement hay, which alone is apt to cause digestive troubles. Also under intensive grassland dairy farming a small area in mangolds is valuable in allowing winter spelling of grass for early-calving cows in spring.

A small area on fertile ground is a wise investment on the dairy farm, provided the crop is conveniently placed for attention during the growing period. Every endeavour should be made to obtain heavy yields on small areas, and several successive crops may be grown on the same ground utilising farmyard manure and fertilising well with basic superphosphate.

A deep, mellow tilth and a fine, firm seed-bed are essential. The crop is preferably grown on ridges, especially on heavy soil. During cultivation earth and weeds are drawn away from the roots as the ridges disappear. Thinning and weeding unfortunately involve much hand work during early stages of growth. With more intensive grassland management and shortage of labour the area in mangolds has declined by nearly 1,000 acres annually over the last few years. In 1943-44 61 per cent. of the crop was grown in Canterbury and Southland and 20 per cent. in the Wellington Province. The globe variety grows a satisfactory crop under a wider range of conditions than Long Red, which should be confined to the most fertile soils. Tankards have the lowest yields but the highest dry matter content.

Sugar beet is closely related to the mangold and requires the same conditions. Early thinning is necessary for both crops, as several seeds are contained in each capsule.

Although the yield of sugar beet is only about half that of mangolds, the dry matter is twice as great, the heavy leafage has a high feeding value, and pitting of the roots is not required.

The crop is excellent for pig feeding, a quarter acre per sow providing the bulk of feed required to winter autumn litters.

Sugar beet is somewhat subject to mottled heart disease, and successive crops on the same ground should be avoided.

—*E. M. BATES, Instructor in Agriculture, Alexandra.*

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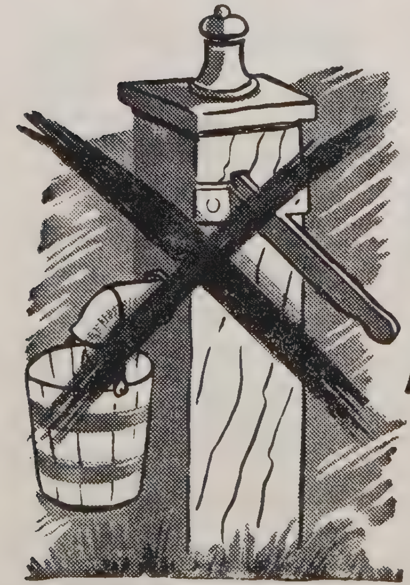

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Spraying, Cultivation, and Grafting

SEPTEMBER is generally recognised as the time for the first spray applications, and in some districts the foundation sprays will have already been applied.

Some essential points in successful disease control are:—

1. The use of proper spraying equipment in thorough working order.
2. Application of sprays at the proper time.
3. The use of reliable spraying materials.
4. Care in weighing and measuring spray ingredients.
5. Thorough spray coverage of all portions of the tree.

Climatic variations make it impossible to give a complete spray programme for the whole of the Dominion, but with slight modifications to meet special circumstances according to district, the schedules below are applicable to all parts of New Zealand.

The alternative programme is recommended where bitter rot (*Glomerella cingulata*) or ripe spot is prevalent.

Where leaf hopper becomes troublesome nicotine sulphate should be added at a dilution of 1-800 when the nymphs appear, which is usually about January, but in some districts and under dry and warm conditions this pest may appear much earlier. Therefore, it would be wise to keep the foliage under observation from October onwards.

Should red mite appear, it may be necessary to make two applications of summer oil at a dilution of 1-100 during January and February, but oil must not be applied within 10 days of a sulphur spray.

Cultivation

Spring ploughing should be completed as soon as possible, after which the ground should be cultivated frequently in order to work the soil down to a fine tilth, which is very necessary for the conservation of moisture during the drier periods of the year. If this work is neglected until later in the season, many soils set hard, making it difficult for implements to break through the surface. By careful and clean cultivation the infestations of some insect pests, especially bronze beetle, can be reduced, particularly during the period this pest is on the wing.

The grafting of unsuitable varieties can be undertaken during September and October, and the work should commence as soon as the bark will lift freely. Bark or rind grafting is the method generally used on fully-grown trees, but on younger and smaller trees the whip graft is more suitable. Care should be exercised in the cutting of both stock and scion, and the grafts should be securely sealed with a suitable grafting preparation in order to exclude all air.

The refurnishing method has frequently been used within recent years, and although much extra work is entailed, it has the advantage of a considerable saving of time in bringing the tree back to full production. In refurnishing, the trees are more or less skeletonised, and scions are inserted along the whole length of the main limbs at a distance of from 15 to 18in. Suitable laterals and fruiting arms are cut back to short stubs for grafting, while others should be removed entirely. Leaders should be shortened slightly and grafts placed on top of the cut.

—D. J. HOGG, Orchard Instructor, Mapua.

APPLES.

PERIOD OF APPLICATION.	TREATMENT.	DISEASE OR PEST.
Early green-tip	Bordeaux 5-4-50 or Lime sulphur 1-30	Black spot, powdery mildew.
Open cluster to pink	Lime sulphur 1-150	Black spot, powdery mildew.
Petal fall	Lime sulphur 1-200 Colloidal sulphur 2lb.-100 (40%) Lead arsenate 1½-100 Hydrated lime 3lb.-100	Black spot, powdery mildew, codling moth, bronze beetle, leaf-roller.
Ten to 14 days later	Ditto	Ditto
Fourteen- to 18-day intervals to mid-December	Ditto	Ditto
Eighteen- to 21-day intervals to end of January and later if required.	Ditto or Bordeaux 1-2-50 Lead arsenate 1½-100 Plus spreading agent	Black spot, powdery mildew, bitter rot, ripe spot, codling moth, leaf-roller.

PEARS.

PERIOD OF APPLICATION.	TREATMENT.	DISEASE OR PEST.
Early green-tip	Bordeaux 5-4-50	Black spot
Open cluster to pink	Bordeaux 3-4-50	Black spot
Petal fall	Bordeaux 3-4-50 plus lead arsenate 1½-100	Black spot, codling moth.
Fourteen days later	Ditto	Ditto
Eighteen- to 21-day intervals to January and later if required.	Ditto	Black spot, codling moth, leaf-roller, pear slug.

◆

Citrus Notes

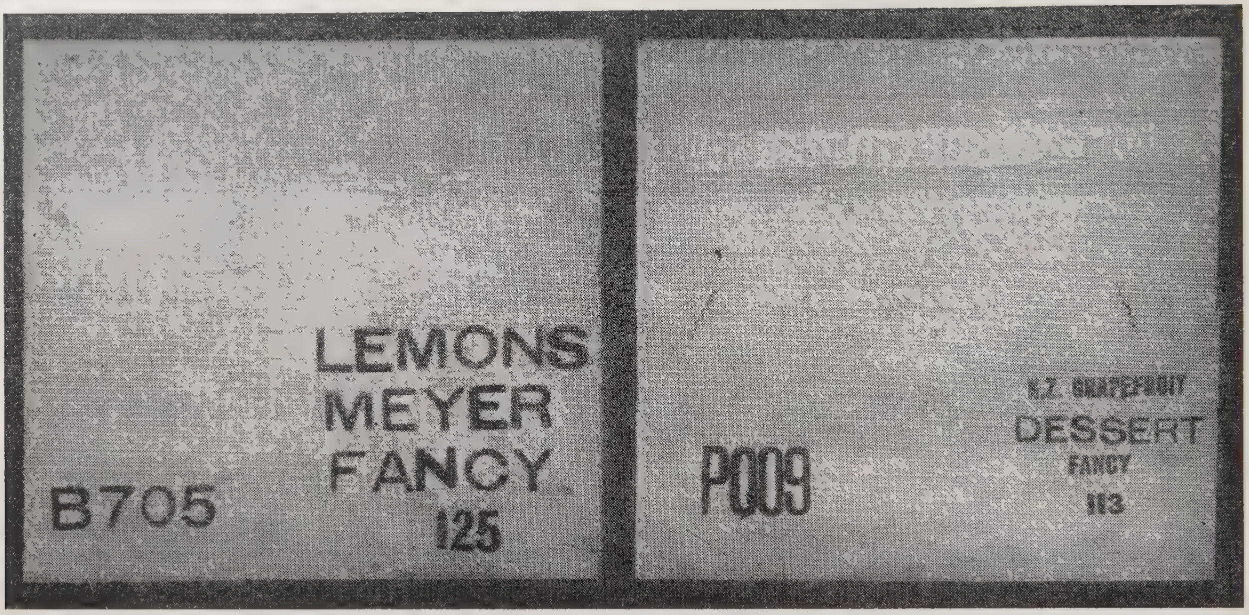
Fungus Injury

THE banding of the trunks of citrus trees with tangle-foot in areas where dicky rice weevil is present should be completed by the end of October. This is important because the first brood of adult weevils commence to emerge at the beginning of November, and it is while the fruits are very small that the worst injuries can be caused. Injury frequently takes place before the blossom petals have fallen. The material should be applied in bands about 2in. wide and a thickness of not less than one eighth of an inch. The surface of the band should be rubbed over at approximately monthly intervals to break the film which is likely to form on the surface. All branches should be kept clear of the ground and weed growth or pasture prevented from coming in contact with the branches, otherwise the banding operation is rendered almost useless.

Injury to citrus by dicky rice weevil is not confined to the fruit and foliage, as the weevil, when in the larval stage, feeds on citrus roots. The debilitating effect this pest has on citrus trees is most marked where there is appreciable infection, consequently it is important that trees not yet in bearing should also be banded. Sufficient tangle-foot material to meet requirements for the season should be ordered immediately, if this has not already been done.

Citrus Verrucosis

The fungus disease known as verrucosis is one of the major diseases liable to attack the fruit and foliage of the various kinds of citrus in New Zealand. The Meyer lemon, Citronelle (rough lemon), and the Wheeny grapefruit are most susceptible to the disease, but other varieties of lemon, mandarins, tangelos, and grapefruit, including the New Zealand grapefruit, are also liable to become severely infected if adequate preventive measures are not taken. Control



Citrus fruit cases showing correct branding on one end.

[*Sparrow Industrial Pictures photo.*

of verrucosis can readily be secured by the use of Bordeaux mixture sprays at a strength of 3-4-50. The number of applications necessary depends on the susceptibility of the tree and the prevalence of the disease. Trees severely infected may require as many as four applications during one season to effect a satisfactory control. In such cases the initial spray should be applied when the earliest blossoms become fully opened, the second approximately one month later, and the third about mid-December. The fourth application, which is generally required for lemons only, should be made during the autumn blossoming period. Where only very slight infection has occurred during the previous season one application made when most of the spring blossoms have fallen will generally prove sufficient to effect control. The correct periods of application and complete spray coverage are important factors in securing control of the disease. Infected fruits should be removed and destroyed.

Care in Handling

Fruit-rotting fungi cause considerably more wastage in citrus fruits during October and November than at any other period of the year. Consequently, it is important that special care should be exercised in the handling of fruit during this period so that wastage will be reduced to a minimum. The stalks of fruit should be cut flush with the "button," but on no account should the "button" be injured. Field cases and grading bins should be kept free of dirt, protruding nails, and splinters. The over-filling of picking bags and field boxes can readily result in injury to fruit. Finger nails of pickers, graders, and packers should be kept cut short if gloves are not worn, as microscopic injury to the delicate oil cells of the rind is sufficient to permit the entry of fruit-rotting fungus spores.

BRANDING OF CASES.

THE provisions of the New Zealand-grown Fruit Regulations 1940 make it compulsory that one end of all packages of fruit offered for sale shall be branded in a specific manner. For oranges, lemons, and grapefruit the principal requirements are as follows:—

Bottom left-hand corner: The grower's registered mark.

Bottom right-hand corner: The grade, kind of fruit, and count, and, in the case of Meyer lemons, the variety and the words "cured" or "not cured." The word "grapefruit" should be preceded by either "dessert" or "marmalade," according to the stage of maturity. All of the above details should be branded in decipherable characters of not less than ⅜in. block type. The shipping or forwarding mark should be placed in the centre of the end. If a grower desires to include his name and address, this should be placed directly under the registered mark and be in decipherable characters of not less than ⅛in. block type.

When any citrus fruits are being despatched as a gift the words "gift fruit" must be clearly marked on the case. For any citrus fruit sold direct to a factory or packing establishment the only compulsory brand required is the registered mark of the owner. All of the markings mentioned above should be included on one end of each package, but can be repeated on the other end if desired. Under no circumstances should the tops, bottoms, or sides bear any brand or inscription.

While it is permissible to brand packages by means of a stencil, it is preferable to use rubber stamps, which are more speedily applied and present a more attractive appearance. Rough markings with pencil or crayon are not permitted; furthermore, packages marked in this manner are likely to create a poor impression when the contents are presented for sale on the market.

—P. EVERETT, *Orchard Instructor, Kaikohe.*

P1

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HOME GARDEN NOTES

Work for October

"Whatever we have in any sort begun wisely, it is good to finish it thoroughly."—John Ruskin.

HAVING had a good start with the vegetable-growing season, every effort should be made to adhere to the planting scheme as originally decided upon before planting commenced. Alterations for the sake of expediency will invariably have unsatisfactory results.

Tomatoes

The increasing importance of tomatoes in the daily diet warrants this crop being given pride of place in the garden work for October. In most districts where tomatoes can be grown satisfactorily outside it is advisable to start hardening off the young plants from the beginning of October. If plants are to be purchased, this should be done as soon as convenient. These, too, should be properly taken care of until they are set out in their permanent place. Because of their removal when more fully grown, purchased plants should receive greater care in the hardening off period than those which have been home-grown. A sheltered part of the garden should be chosen for transplanting, and adequate protection provided against high winds. In bright, sunny weather light shade for two or three days immediately after transplanting would be an advantage.

As soon as the area in which the plants are to be grown to maturity is clear of the preceding crop soil preparation should begin. If, at the time of reading these notes, the land is growing a green crop, this should be dug in immediately. Heavy soil will require trenching, and provision should be made for adequate drainage.

It is an advantage to apply the fertiliser at least two weeks before planting time. In the home garden blood and bone manure is still the safest fertiliser to use for tomatoes. Four ounces should be distributed along each 9ft. of row, or 5oz. bonedust. If this is done, the plant food content of the manure applied will be available for assimilation by the plant earlier than it would be if application is delayed until planting time.

When the plants are to be grown to one stem only, 12 to 14in. is convenient spacing, but 16 to 18in. will be necessary when two stems are trained from each plant. When setting the plants they should be placed in the soil—not dumped down—so that the first true leaves are just above ground level. If more than one row of plants are set out, they should be separated by not less than 3ft. Throughout the tomato-growing areas of the Dominion Labour Day is recognised as a safe time for setting plants in the garden.

Pumpkins and Squash

As plants belonging to the pumpkin and squash family are all frost-tender, it is not advisable to have them growing outside earlier than late October. Plants for setting can, however, be obtained by adopting much the same procedure as that practised for growing tomatoes. A box not less than 6in. deep should be used and filled to the top with a mixture of soil and compost. Three seeds can be pressed into the soil 2in. apart to form a triangle, with 6in. at least between each lot of seeds. Plants grown in this way may be treated just like tomatoes, and hardened off in the same manner. The day before planting the box should be soaked in a tub or bath, so that the soil will be thoroughly wet when the plants are removed for setting. Considerable care is necessary when the plants are being taken out of the boxes. They should not be separated, but, if possible, maintained in the triangular form in which they were grown and these planted in one place. To grow this crop successfully in the home garden nothing better can be dug into the soil than well-rotted stable manure, supplemented by a couple of handfuls of superphosphate to each lot of plants. Six feet each way is the usual spacing between "hills" of plants. It is possible to grow them along the wires of a strong fence.

Rock Melons: All the above remarks apply to rock melons, but these are usually planted 8ft. apart.

Marrows: Marrow plants may be propagated as advised for pumpkins, but the special variety recommended for the home garden—Long White Bush—should be spaced 3ft. apart each way.

Beans

For early production of beans caution is necessary with regard to the weather conditions which may obtain in different districts. The plants are frost-tender, and the slightest degree of frost will destroy all young growth. Cold, wet conditions are also undesirable for early sowing, and the plants will not flourish where cold conditions prevail either above or in the soil.

To secure an early crop seed of a dwarf variety should be sown. Black Valentine or Canadian Wonder Improved (Burnley Selection) are suitable varieties; the latter is reputed to be largely wilt resistant. Heavy manuring is not necessary for beans, and in ordinary good garden soil superphosphate 2oz. to the running yard of row will generally be sufficient fertiliser. Under moist conditions and in light soil the seed should be sown not deeper than 2in., while in heavy soil less depth is desirable. Before sowing, and with a goose-necked garden hoe, a shallow trench should be opened, at the bottom of which the seed may be sown. Subsequent cultivation will fill in this trench and give the fully-grown plants better rooting facilities.

Potatoes

Early potato crops will require attention, and where wet weather conditions have been experienced hoeing, particularly for weed destruction, is necessary. Good-sized early tubers cannot be secured under conditions where they have to compete with weeds for the plant food in the soil. Further, weed growth among the plants prevents proper air circulation,

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which, under humid conditions, will almost certainly be responsible for an attack of potato blight. For additional protection to the plants a timely spraying with Bordeaux mixture should be made.

Carrots

When carrots are being thinned the soil should be pressed firmly against the crowns of the remaining roots. After thinning horticultural naphthalene may be applied at the rate of 1oz. to 9ft. of row. To obtain even distribution this may be mixed with dry sand or soil.

Cabbage (Early Savoy)

Seed may be sown now for an early autumn crop of Savoy cabbage. This planting should not follow in the same part of the garden on which the spring cabbage crop was grown. Early Savoy cabbage plants, if set out as soon as properly ready, will, under favourable conditions, be sufficiently far advanced in growth to escape serious damage from aphis. They should be liberally fertilised and kept well watered.

Leeks

Leeks are a first-class late autumn, winter, and early spring vegetable, and seed should be sown during October. The plants may be grown in boxes, and, whether grown this way or in the open garden, better plants will be obtained by sowing the seed in rows. If a box is used, it should be not less than 6in. deep. Two inches spacing between the rows will be sufficient. The soil in the box should be maintained in moist condition, but between the rows the surface soil should be kept in loose condition.

Asparagus

Cutting of asparagus should not be made from one-year planted roots and not more than two weeks' light cutting from those which are planted for 2 years. Only from matured roots should harvesting be continued from 7 to 8 weeks. The spears should be cut under the surface, and always with a downward slope. When the spear is cut through the cutting tool should not be pressed further, otherwise injury to undeveloped buds is likely, which will prevent subsequent growth reaching maturity in usable condition.

Kumaras

Kumaras should not be set out while there is any likelihood of frost. They are particularly sensitive to extreme cold and are easily destroyed during frosty conditions. In favourable situations plants may be set out from mid-October onwards. A light, sandy, well-drained, loamy soil, in a position which will be quickly warmed up by the sun, is suitable for a good crop. Kumaras may be grown in much the same way as potatoes, except that the "slips" should preferably be planted on land which is slightly ridged. Fertiliser should be applied as for potatoes, excess nitrogen being particularly avoided. When set out under dry soil and weather conditions the plants will get a better start if given a good watering.

Garlic

Where garlic bulbs are required for domestic use there may still be sufficient time to bring the plants to maturity. Garlic is grown from "cloves." These are the segments of which the bulb is composed, and may be planted from 4 to 6in. apart in rows 1ft. apart. Depth of planting will vary from 1 to 2in. according to the type of soil.

Celeriac

Celeriac differs from ordinary celery in that the bulbous root is eaten. Celeriac seed may be sown any time now, and the seedlings transplanted 2in. apart each way. As the bulbs are very tender when small, the plants can be set as close as 4in. in rows 12in. apart. Much the same cultural practices as for celery are necessary for the production of good-quality bulbs. Attention to detail, however, is not required to the same extent, and the plant is not blanched.

Cucumbers

Except in comparatively frost-free areas, cucumber seed should not be sown until late October. Cucumbers are grown as an outside crop only in districts where relatively warm weather conditions obtain. They will grow well on most types of soil, those of light texture being best for early crop production. Cucumber plants require abundant moisture, but good drainage is very necessary. Holes may be dug 12in. deep, being the same width, and filled to a depth of 6in. with well-rotted stable manure, which is covered to soil level with good friable soil containing plenty of organic matter. Round the edge of the soil filling, 6 to 8 seeds may be planted, the seedling plants being subsequently thinned to 3 or 4. These "hills" should be spaced 42 to 60in. apart each way.

Peas

A main crop sowing of peas may be made during October; seed of Greenfeast, Stratagem, or Richard Seddon should be used. The dwarf variety which already may be growing in the garden can very largely be brought to maturity by banking with plenty of soil, hoed from between the rows. The taller-growing varieties named above should, however, be given some support. Banking will considerably assist, but wire-netting fastened to stakes will give best results. If properly grown, any of the varieties mentioned will grow up to 4ft. and higher, and will bear continuously for 6 to 8 weeks. Provided the main crop sowing is well looked after, the crop returns will amply reward the labour expended. Plenty of water is necessary, but good drainage is essential. This crop should not be grown on an area in which peas were grown last season. Rotation is the best means of preventing the plants being attacked by collar rot. If seed has not been saved from healthy, vigorous, disease-free stock, buy only the best seed from reputable seedsmen.

—D. K. PRITCHARD, Instructor in Vegetable Culture, Wellington.

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NOTES FOR BEEKEEPERS

Inspection of Hives for Foul-brood

WITH the coming of spring and warmer days, each hive in the apiary should now be showing signs of increased activity. If the colonies were closed down in the autumn with a generous quantity of honey for winter stores, the hives, especially those with young and vigorous queens, will now contain at least three or four frames of brood.

Care will have to be exercised at this time and for the next two months to ensure that the stores required to feed the ever-increasing quantity of young bees and brood do not become short, as it is at this period that colonies are in the greatest danger of starvation. It must be realised that the bees rapidly deplete existing stores when brood rearing is being accelerated, and, because they may display great activity on fine days with the gathering of pollen, beekeepers should not assume that sufficient nectar is also being gathered. Such activity, on the other hand, is a warning that the colonies may require supplementary feeding to sustain their early brood rearing until greater quantities of nectar are available.

Colonies need all the young bees they can rear at this time of the year. Weather conditions are likely to be erratic, and provision should be made to ensure the maintenance of brood rearing by transferring combs of honey from clean hives with a surplus to those where the stores have been consumed more rapidly. This method is preferable to artificial feeding, but it is of the utmost importance that this practice is carried out only when the beekeeper is certain that the apiary is free from foul-brood. Where there are no spare combs of honey available for this purpose the colonies should be artificially fed with a syrup made up with equal parts of sugar and water.

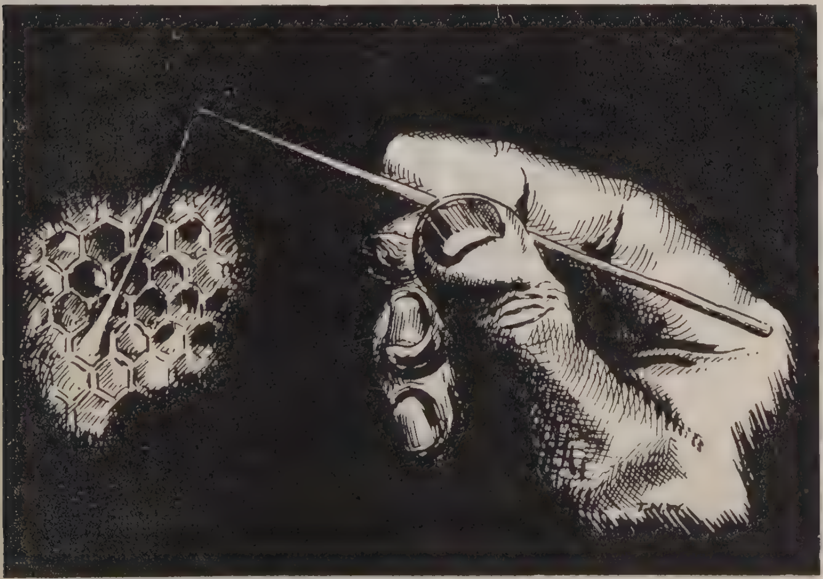
Great care should be exercised when performing the early spring work in the apiary, and every precaution should be taken to avoid any unnecessary robbing. Should any stray bees appear and settle on exposed combs while a hive is being inspected, the hive should be closed down immediately and apiary work suspended, as such bees will subsequently become too numerous and then develop wholesale robbing, but when the bees are busy gathering nectar or pollen a more prolonged examination will be fairly safe and progress can be made.

The replacement of all damaged or ill-fitting supers, lids, and bottom-boards is essential, as hives in this condition in the spring encourage stray bees to rob, and also provide the robbers with easy access to the honey stores.

Where robbing has commenced the colonies that are being plundered will have little or no chance of survival unless all the hive openings are sealed with grass or some other suitable material until the trouble subsides.

One of the main objects of examinations at this time of the year is to inspect each brood comb carefully to ascertain if American foul-brood (*Bacillus larvae*) is present, as this disease attacks only the brood or larvae bees. The presence of this disease is usually detected by the appearance of the cell cappings. When the brood is healthy the larvae are pearly white and the cappings uniform in colour with an even convex form, but cells containing diseased larvae are generally darker in colour and more concave or shrunken than the surrounding healthy ones. This circumstance alone is not sufficient evidence to decide that the colony has foul-brood, and it is necessary to investigate further. If, on opening any such suspicious cell, a coffee-coloured and shrunken larvae is found, which, on inserting a straw or wooden match, adheres to the point and can be drawn out rope-like for a distance, as illustrated, undoubtedly American foul-brood is present.

Infected larvae usually die about the time they enter the chrysalis stage, or when the cells are capped over, although where infection is severe in a colony some infected larvae will be observed that have died as they were about to change into the



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form of adult bees during the early pupae period. Where cells display dark perforated cappings, and a glue-pot smell is noticeable, the infection is in an advanced form. Following the last phases of decomposition, the remaining dead matter dries into a black scale on the bottom of each cell.

Causes of Infection

The principal causes of infection are:—

1. Healthy colonies robbing diseased colonies.
2. Supplying colonies with honey or combs from infected hives.
3. Leaving exposed to bees any combs or honey from a diseased hive.
4. Manipulating healthy colonies after diseased ones, without first thoroughly washing the hands and sterilising the hive-tool.
5. Hiving swarms from unknown sources.

Initial foul-brood infection is generally introduced to a hive following the robbing of honey from a nearby colony previously weakened by this disease. The spores of *Bacillus larvae* are, in such instances, contained in this robbed honey, where they may remain inactive within the hive for a very long time. These quickly become active and produce the disease immediately the infected honey is fed by the nurse bees to bee larvae.

When this disease first develops in a colony there are just a small number of cells infected, but because there are thousands of spores in the minute particles of infected matter and the disease is extremely contagious, such cells rapidly become more numerous and seriously reduce the number of hatching bees necessary to maintain colony population. Ultimately, the colony is in a weakened condition and is then easily robbed by other bees in the vicinity.

Control Measures

To prevent the contamination of other colonies in the apiary or vicinity control measures must be applied immediately the infection is noticed. While strong colonies can be successfully treated for disease at certain times with proper management, the destruction by fire of any infected bees, frames, and hive equipment is recommended.

When a diseased hive is to be destroyed by fire the work is best done in the evening, as every precaution must be taken to prevent any bees drifting to other hives, or exposing any infected honey where healthy bees can reach it. A couple of teaspoons of calcium cyanide on a piece of cardboard inserted into the entrance will kill the bees. To make a quick and effective burn a fire with plenty of flame should then be made in a hole that has been dug as near the infected hive as possible. The hive and all infected material should be placed directly upon the fire (bottom-board and roof are removed to create a draught through the supers) and, when all is consumed, the hole should be filled in to bury the remaining ashes.

Should American foul-brood appear in the apiary, or should there be any suspicion of the presence of the disease, the Apiary Instructor for the district should be notified, and immediate steps must be taken to prevent any possible spread to other hives. By notifying the local Apiary Instructor all information concerning the proper measures to adopt for the eradication of the disease may be obtained.

—*E. SMELLIE, Apiary Instructor, Christchurch.*

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POULTRY KEEPING

Free Range for Growing Stock

WITH the development of mass production and rearing methods, it cannot be questioned that there has been a gradual reduction in size, weight, and constitutional vigour in poultry stock. In all branches of stock breeding the maintenance of constitution is recognised as of first importance, but with high-producing fowls, upon which there is a continued strain, the primary importance of constitutional vigour can hardly be over-emphasised. Thus it is essential that every means possible should be adopted by poultry-farmers to ensure the incorporation of all factors responsible for the promotion of health, strength, and productivity.

It must be realised that commercial poultry-farming, especially on restricted holdings, sometimes does not offer the best conditions for producers to raise stock to a standard which they undoubtedly wish to attain. Many poultry-farmers, however, could attain this standard, or do much more to accomplish their aim, were they to study the most obvious causes which persistently defeat their efforts. One such weakness is the mass production and rearing of young stock under intensive or semi-intensive conditions.

Intensive

Intensively-reared young stock have no liberty and little exercise beyond that obtained by scratching in search of food scattered among litter, which all too frequently is fouled with droppings, or is damp to such a degree that it is in a semi-solid mass. Litter in this condition is ideal for fostering disease organisms and parasitic life, which result in the production of devitalised second-grade stock. The provision of dry, clean litter and frequent cleaning of the floors are imperative to maintain sanitary conditions. It is true that some managers of intensive plants have succeeded in producing good stock, but they are few and far between. Their success is due to a natural flair for poultry-farming and the careful use of experience gained under those special conditions.

Factors essential for success are the provision of ample fresh air, the maximum of sunshine, and strict sanitary conditions, while carefully avoiding overcrowding.

Semi-intensive

The remarks on poultry-keeping on the intensive system apply with modifications to the semi-intensive system, in which the success achieved will be in proportion to the industry and effectiveness of the owner's efforts to promote the essential requirements relating to health, size, and constitution.

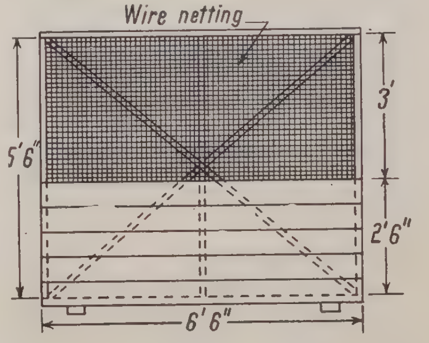
Free Range

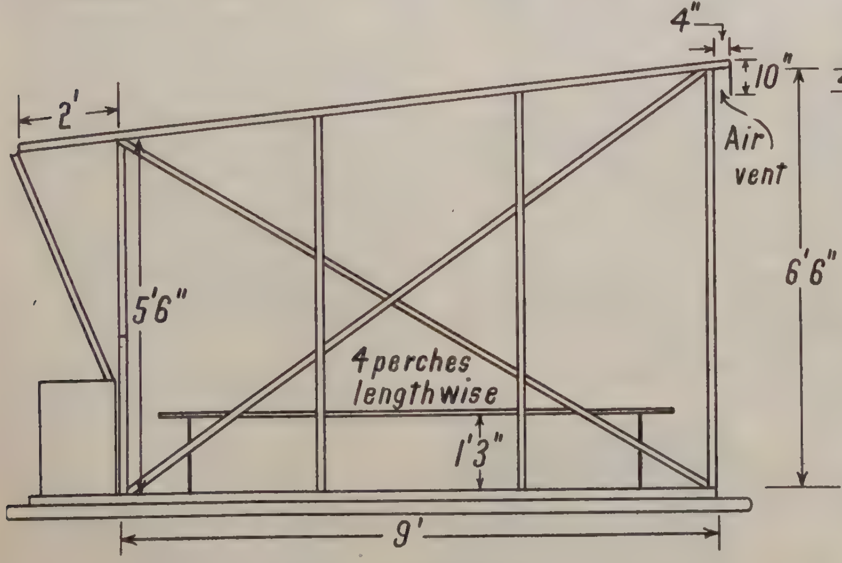
With a full knowledge of the shortcomings of the above systems, the effectiveness and value of full liberty on free range for the rearing of growing stock cannot be over-emphasised. These conditions are also of great value for breeding stock.

When planning the layout of poultry plants the possibilities of the site will determine the system to be adopted, but unless a suitable area can be set aside for free range for the growing and breeding stock, irrespective of the system decided upon, the area should not be considered as entirely satisfactory. It is beyond question that range conditions are the most desirable for all classes of poultry. On free range the birds have full liberty, which enables them to secure the maximum amount of exercise, fresh air, and sunshine at all times. Free-range land should be used in rotation to prevent the contamination of the soil and to preserve clean pasture, both important features in the promotion of growth, constitution, and health.

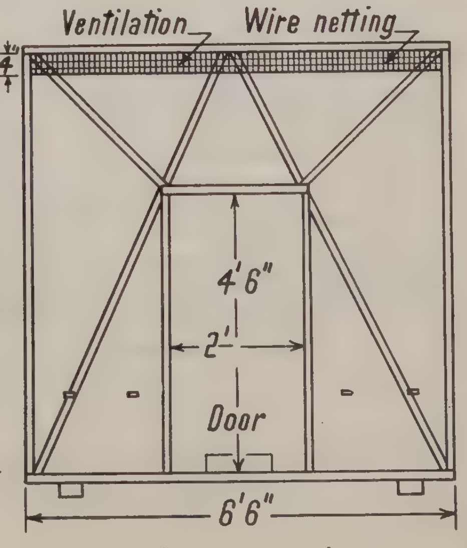
The value of a pullet is determined by the number of standard eggs she will produce in the winter and early spring, under adverse climatic con-

Front Elevation





Side elevation



Back elevation

ditions, and management should embrace every means possible to endow pullets with the necessary strength to fit them for this task.

Housing

Housing is of equal importance during the growing stage. It should provide ample growing space, fresh air without draught, and very necessary inside shade. A summer colony house built to the plan which is procurable from district offices of the Department of Agriculture provides these requirements.

Shade and Shelter

The provision of shade must not be overlooked. The growing stage of young stock is during the period from spring to early autumn, when the days are long and sun high and strong. Where natural shelter in the form of hedges or trees does not exist artificial shelter should be provided. Suitable shelter is provided by either a brush or strong hessian fence facing towards the sun in breaks 10 to 15yds. long. A break of artichokes planted in the runs will also provide excellent natural shelter, besides having a commercial value when harvested. A few spadefuls of earth turned over periodically on the sheltered side will provide excellent dusting facilities and induce the stock to remain outside.

Without outside shelter, the young stock will invariably frequent their housing quarters for over-long periods during the day.

Size of Stock

One vital quality attributable to range conditions is that size in stock is more readily obtained. The problem of breeding vigorous stock of the required weight and size has been emphasised in connection with the recently-inaugurated Poultry Flock Improvement Plan. Too high a proportion of breeding stock submitted for accreditation fell below the required standard of weight. The problem could be partly solved by breeders keeping on range conditions the cream of their pullets which have been selected and earmarked for future breeding stock in their second season. It would be necessary to feed and manage these pullets with this objective in view, and the temptation to force them to the highest egg production must be avoided. Such an objective raises the question of suitable housing. While the summer colony house for growing stock is excellent for its purpose, it is not claimed to be a laying house for range conditions.

The house illustrated on the previous page is useful for either a breeding pen or range, or for housing pullets destined to be future breeding stock. The type and construction of this house permit easy and simple management. Provision should be made for inside nesting accommodation. A water system supplied by rain is included. The house is built on skids for easy transfer to avoid contamination of pasture and soil. When consideration has been given to the factors outlined the question of breeding a higher standard in stock will be possible. This is the primary objective of the Flock Improvement Plan, and any progress made in this direction will further the fulfilment of the scheme and also arrest the main contributing causes responsible for the deterioration apparent in much of our stock.

New Zealand has an ideal climate for breeding poultry, and scores of breeders have the necessary knowledge, but difficulty is experienced in holding their stock to the desired standard when modern innovations associated with mass production compromise their breeding practice.

A little thought and planning will repay the breeder for the small degree of labour and capital expense involved in meeting these conditions.

Cockerels

Special care is required in providing for growing cockerels. They must be kept apart in separate quarters until they are 8 or 9 months old. The strength and vigour of the males will determine the results of the breeding, hatching, and rearing. The more vigorous the males the more pugnacious they become, and everything possible must be done to prevent them from injuring each other through fighting. For this reason natural or artificial shelter is of extreme importance, as it enables the more slowly maturing bird an opportunity to escape the attentions of the stronger and more developed cockerels. Unless shelter is provided, cockerels will sit for hours on the house perch, a practice that brings about deformed or crooked breast bones. Furthermore, their bodily development is impaired, not only through lack of exercise, but because they do not get their share of the food. A hopper of grain should always be available inside the house.

An effective way of combating the more pugnacious cockerels is to erect a post-and-rail fence in two or more places inside the run where the weaker birds can take refuge.

Late-hatched Stock

Where the breeder has no option but to hatch late stock the range system is most desirable. Late-hatched stock seldom develop into anything more than payable stock; they are rarely regarded as breeding stock of quality.

Greenfeed

Constant and ample supplies of fresh, succulent green food are essential in the management of young growing stock. On few poultry farms is the supply as adequate as it should be. All poultry should be fed greenfeed not only as a proportion of their daily ration, but as much as they will readily eat, after being supplied with their normal full requirements of grain and meal rations. From the green food fed the birds obtain small quantities of vitamins, minerals, and colouring material essential to health and body requirements. When ample supplies of greenfeed have been made available either in the form of fresh pasture, or fed from cultivated areas, the example and condition of their leg colour are an indication that the green food supply is adequate. The green material should be fresh and succulent. Bulky, fibrous material is of little feeding value, and is at the same time dangerous to the digestive system.

—*L. COCKER, Poultry Instructor, Christchurch.*

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YOUNG FARMERS' CLUBS

How to Run a Successful Young Farmers' Club

By A. C. Buist, Advisory President, Feilding Y.F. Club.

Now that most clubs are getting well into their stride, or are in the process of being revived, or perhaps the formation of a new club is contemplated, a few hints on how to run a successful Y.F.C. may prove helpful.

IN any club or society success largely depends upon two important factors—first, the enthusiasm of its members, and second, the skilful organisation of those activities for which the club is constituted.

Enthusiasm

The first of these essentials—**enthusiasm**—is the foundation of most successful organisations. As Emerson has truly said, "Every great and commanding movement in the annals of the world is the triumph of enthusiasm." A few sensible enthusiasts, inspired with zeal for their particular cause, attract to themselves like-minded people and others, and in due time the movement is launched and expanded. Likewise, to start a successful Y.F.C. in any district, the first requirement is a few young farmers fired with enthusiasm for the movement, and there you have the nucleus of a good club, for this enthusiasm is infectious; in no time it will spread—keen members **must** propagate the good news, you just can't hold them back. And remember, after the due formation of the club all officers elected to responsible jobs must be animated by a similar enthusiasm, or they will be useless and the club will suffer. Let it be clearly understood, then, that the first requisite towards the formation and running of a successful Y.F.C. is enthusiasm for the movement and in the movement.

Organisation

Then comes the second point—**organisation**—and this has a very comprehensive application. It covers the whole ramifications of the club, including the responsibilities of individual members as well as of their officials, and embraces all the organised activities of the club. Let us look into these matters in more detail: but first let me again emphasise that unless those responsible for the running of their club are prompted by the enthusiasm and sense of responsibility previously referred to, they will fail to inspire their fellow-members with the true Y.F.C. spirit.

Organisation falls into two natural divisions—first the formal or internal structure of the club, and then the activities arrangements. Dealing first with the formal side, at the outset see that the date, time, and place of meeting are arranged to suit the majority concerned: this is important to secure maximum attendances. Also endeavour to secure heating in the meeting hall—a Y.F.C. or any other club will never thrive in a freezing chamber.

Officers

Then comes the question of the selection of officers, of whom the chairman is naturally the most important. But **all** officers must know and **do** their respective jobs if the success of the club and the enthusiasms of its members are to be sustained. The chairman must be one who can conduct the meetings in a business-like manner, and generally guide the activities of the club. While weakness in the chair wastes valuable time and engenders general slackness, on the other hand, domination is to be soundly discouraged. The good chairman controls with tact and impartiality, but never dominates; he is generally expected to give a lead, but not to drive. Above all, he avoids monopolising the meetings by expounding his own views at great length before other members have the opportunity to express any opinion. How many gatherings are ruined by a loquacious chairman who perhaps all unconsciously creates a "one-horse show."

The secretary must be a live wire in every sense of the term, and one who never leaves any part of his duties undone or entrusts it to someone else. His notices of meetings should be dispatched promptly; the minutes correctly recorded and always available for confirmation at the following meeting; correspondence punctually attended to and duly reported to each meeting, and all accounts presented and paid without delay. A capable secretary is as important for the success of a club as is an efficient chairman, so always exercise care in the selection of these officers. Then for the other appointments in your club: choose those who can be relied upon to **do** the job—nothing is more discouraging than to hear as a "report" the familiar—"Sorry, but I haven't done anything yet!"

As advisory members, suitable older men can be of considerable assistance to clubs, but they must understand the full import of the word "advisory"—it does not involve licence to lecture. Many clubs owe their high standing to the quiet, unassuming assistance and advice extended to them by their advisory members, but it is possible for these good friends in some instances to commit the grave error of offering too much advice.

Activities

Having dealt with the formal organisation of a club, we now come to its practical activities—the programmes for each meeting and for any outside function in between. A syllabus of meetings should be drawn up at the commencement of the year embracing varied and useful topics introduced by suitable members, leaving an occasional "open" night for emergency subjects. Farming topics will naturally predominate, supplemented by talks on rural law and perhaps accounting contributed by experienced helpers; then occasional debates on suitable subjects, also an odd social evening should be worked in during the session. It is wise to appoint a small syllabus committee to frame a schedule for the season. Then outside field days, demonstrations, competitions, and shows are also very important activities, for "school-room" talks and lectures must be supplemented by practical demonstrations in the field if the lessons are to be of real value.

Basis of Success

Other points will no doubt occur to you to meet your particular local conditions, but if prominence is given to the following practical points, the success of your club is assured:—

1. Every member enthusiastic and pulling his weight.
2. Responsible officers to ensure that all gatherings are well conducted, and that they perform their own tasks efficiently.
3. The time, date, and place of meetings are suitable, and that every member receives due notice.
4. The programme well prepared in advance, and all members given full opportunity to take part, especially the younger ones. Subjects to be useful and varied, and within the scope of the average member—never above his head.
5. Give special encouragement to younger members; they constitute the foundation of the future of your club.
6. Fraternise with neighbouring clubs; we are always learning.
7. A realisation that the Y.F.C. movement is a challenge to every young man interested in farming.

AND FINALLY, remember, the success of your club depends on YOU.

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Lincoln Old Students' Scholarship

THROUGH the generosity of the Old Students' Association of Canterbury Agricultural College a full scholarship for one year, value £55, is available to **active** members of Young Farmers' Clubs in both islands of New Zealand. The scholarship is tenable in any one of the following courses: (a) The College Diploma course. (b) The Intensive Eight Months' course. (c) The Rural Valuation and Farm Management course.

These courses will commence with the 1946 year. Each club is entitled to send in one nomination to its District Committee, through the district Y.F.C. secretary. The District Committee will make the first selection, if more than one application is received in the district, and will send a district nomination direct to the federation. A final selection committee has been appointed by the federation.

Circulars and an application form have been sent to all club secretaries. Details and conditions are set out in the circular, and clubs are requested to send in their nominations to their District Committee no later than October 5 next, in order that the District Committee can forward its selection to the federation by November 1.

Club secretaries are particularly asked to give this matter their earnest and early attention, as any delay may possibly penalise members who would be suitable applicants and keen to take advantage of the opportunity afforded by the scholarship. Should no meeting of the club be held in the meantime, the secretary should consult his chairman and advisory president, and if necessary call a meeting of the club committee. Where no District Committee is at present functioning nominations from clubs may be sent in direct.

Both club secretaries and the applicants themselves are requested to read the instructions in the circular fully, and to see that the application forms are filled in correctly, in order to save time and confusion.

Cambridge Club's Field Day

By G. C. Herbert, Chairman, Cambridge Y.F.C.

A MOST instructive field day conducted by the Cambridge Young Farmers' Club at Mr. Walsh's farm, Monavale, was well attended by club members and farmer friends. The programme took the form of a combined veterinary, horse, and Southdown demonstration, with lectures by Messrs. Gerring and Shannon. The points, faults, and common ailments resulting from unsoundness and ageing of a horse up to 25 years were demonstrated fully by Mr. R. S. Bowen, B.V.Sc., who answered questions and generally discussed common treatments for ailments.

Mr. Gerring, B.V.Sc., Department of Agriculture, briefly outlined pasture management in relation to increased production. He brought forth many interesting points which conflicted with views widespread among farmers. He emphasised the necessity of more conservation of pasture in the form of hay and silage, and claimed that an area approximately 40 per cent. of the farm was desirable in contrast to the Dominion average of 17 per cent.; if more hay and silage were saved it would increase production. A true test of adequate nutrition was when a cow reached her lactation peak within a month of calving, against the three months taken in some cases.

Mr. Bowen operated on two ruptured pigs. He explained that although there were many instruments he could use, he proposed to make it as simple as possible to show that any farmer would be able to perform it.

Mr. A. T. Shannon, fields economist, Department of Agriculture, discussed the cooperative use of farm machinery, and held up the Kaikohe Dairy Company's venture as an example, claiming that it would become more widespread as time went on, especially when farm labour became "40-hour week conscious." The principle involved was the purchase of mechanical equipment by some co-operative agency, in this case the dairy company, which could arrange for "easy terms" in repayment, thereby helping the small farmers who could not always afford to purchase and maintain tractors and get an economic return for their outlay. There was a fair amount of doubt among those present as to the scheme's practical application, and considerable discussion followed.

The high light of the day was a caesarean operation on a cow by Mr. Bowen, who again illustrated his movements most explicitly, explaining the activities of the various organs, and helped to enlighten his audience on retention of after-birth, etc. Discussion that followed covered many of the dairy farmers' stock troubles, such as foot rot, sucking, etc. A demonstration of throwing a cow was also given.

Mr. Walsh provided a most interesting lecture and demonstration on Southdowns, which to the non-sheep farmers present proved as fascinating as it was instructive to sheep farmers. He penned a number of Southdown ewes which clearly illustrated the various types on which the breed was founded. In explaining their development from a mountain sheep to a meat-producing sheep he illustrated the difficulties with which the breeder had to contend and the effect uncorrected faults would have on subsequent generations. The difference in climate between England and New Zealand also raised its own peculiar problems. He said that the Romney's part in the fat lamb trade was not to be depreciated—both breeds played important roles in producing the quality carcass. It is hoped that in the future Mr. Walsh is given an opportunity to elaborate on this demonstration, and that interested farmers will attend, as it would be of great value to all those engaged in fat lamb production.

In according the lecturers a vote of thanks the club chairman paid tribute to the able manner in which the day was arranged and the immense worth of the assistance given at all times to the club by both Mr. Walsh and Mr. Bowen.

◆

Auckland Field Day

MORE than 50 members of clubs from the Auckland district, together with many local farmers and some Air Force personnel from Ardmore, attended a field day at the Franklin A and P. Showgrounds, Pukekohe, to see demonstrations on sheep, horses, cattle, and pigs, followed by an inter-club judging competition. There were teams of two members from each club for the various classes. Each class was keenly contested and the judging was of a very high standard, especially in the cattle section.

The Kempthorne Prosser cup for the most points went to Clevedon, with Franklin a close second, East Tamaki third, and Pukekawa fourth.

The individual results were:—

Horses.—O. Smith (Clevedon) 1; Cathcart (Pukekawa) and Dunn (Franklin) 2.

Sheep.—Bratlie (Franklin) 1; Burgoyne (Clevedon) and Walters (Franklin) equal 2.

Cattle.—Ross-Smith (Clevedon) 1; G. Bell (Clevedon) 2; K. Ferguson (East Tamaki), Gaskell, and Upton (Franklin) 3.

Pigs.—D. Groves (Clevedon) 1.

The demonstrators and judges were:—Horses, Messrs. F. Storey and S. McRobbie (Pukekohe). Sheep, Mr. A. D. Bell (Clevedon). Cattle, Mr. W. N. Oates (Matamata). Pigs, Mr. T. A. Dewhurst, demonstrator; Messrs. H. Clark, C. Hawke, judges (all members of Pig Breeders' Association).

Stock was kindly made available by the following:—Clydesdale horses, Mr. C. Wright, Pukekohe; Southdown sheep, Messrs. A. D. Bell and Son, Clevedon; Ayrshire cattle, Messrs. Thomson (cow and bull), R. Slacks (bull), and Massell (heifers).

Trophies in each section are to be awarded to the winning clubs as follows:—Sheep, Franklin Y.F.C.; horses, Clevedon Y.F.C.; cattle, Clevedon Y.F.C.; pigs, Clevedon Y.F.C.

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Puketutu Island Stud Farm

EAST TAMAKI CLUB'S FIELD DAY

By L. W. Gubb, Chairman, East Tamaki Y.F.C.

A VERY instructive and enjoyable field day was held recently by the East Tamaki Club, when members were the guests of Mr. and Mrs. H. J. Kelliher at their Puketutu Island stud farm, situated just off the mainland at Mangere, in the Manukau Harbour. The visitors spent a most interesting day looking over the island and inspecting the excellent lines of stud stock amid ideal surroundings.

There were imported stock and local cows of outstanding breeding and quality among the fine Ayrshire herd kept on the island, most of them with excellent show and butterfat records. The members were particularly impressed with the sound body type and the general hardiness of the animals. It is very apparent that the Ayrshire breed is destined to become more popular in the future because of its longer milking life, due to both its resistance to disease and its general hardiness.

The visitors were next shown a line of pedigree Black Polls, which again consisted of outstanding animals, and indicated what sound buying and good breeding could do to improve carcass quality.

Luncheon provided by Mr. and Mrs. Kelliher was served in the grounds of their lovely home. The visitors were afterwards invited by Mrs. Kelliher to inspect the gardens and greenhouses, where there was a fine display of orchids, of which Mrs. Kelliher was particularly proud. During the walk through the gardens Mr. Kelliher spoke on the preparation and uses of compost manure, of which he is a keen advocate.

An excellent stand of lucerne was then inspected; although this did not look its best at the time of year, it appears to do extremely well on this farm, which has a soil of a light and stony nature. Mr. Kelliher is a firm believer in lucerne, both as a green crop for the summer and as hay for winter use, and has had up to five cuts off this stand during the growing season. Members were then shown the two breeds of sheep kept on the property, Southdowns and Romneys. Demonstrations were given by Mr. Hannah, who has spent many years at Lincoln College, and who has recently taken over the management of Mr. Kelliher's stud flocks. The sheep were of especially fine types, and combined the best blood obtainable from both English and New Zealand studs. As opportunity offered during the day Mr. Kelliher showed the visitors some of the old Maori workings on the island, and also demonstrated the construction of stone fences.

Mr. Kelliher expressed a keen interest in Y.F.C. activities, and invited the club to pay a further visit in the summer to obtain a better idea of the lucerne stand and other activities. Mr. Kelliher is to be congratulated on the excellent studs of cattle and sheep that he has established on the island, and on the fine combination of practical and scientific farming that is in evidence. The thanks of the club are due to him for a most interesting and instructive field day, and to Messrs. Watson and Hannah, who demonstrated on the cattle and sheep. Thanks are also extended to Mrs. Kelliher for her kindness and hospitality.

Lecture Brevities

PAMPAS GRASS AND SHELTER TREES: MR. A. C. BIRCH.

THE whole question of farm shelter was covered by Mr. Birch in an address to the Marton Y.F.C. He thought that a great mistake was being made in not planting all the hundreds of acres of sand dune country on the coastal strip. That land was quite useless for farming, and the sand was gradually encroaching inland. With nothing to break the force of the sea winds, the farms bordering the dune land suffered much damage. Mr. Birch gave this as an example of the value of "distant shelter," the purpose of which is to cause the winds to be raised anything up to 80ft. above ground level. He suggested that if farmers planted their own distant shelter belts, where circumstances demanded, it would be to the benefit of all farmers. Much grassland was greatly exposed to heavy winds, and in the spring especially growth is checked considerably. A good distant shelter belt is effective for a distance of ¼ to ½ mile, depending on the nature of the country. Mr. Birch suggested that any rough corner on the windy side of a farm should be planted with shelter trees, as it only looked untidy and was not much use for anything else. "Near shelter" is primarily to keep the ground wind off, and must be thick and close to the ground, whereas "distant shelter" must consist of tall trees. Near shelter is much more easily provided for, and there are many different ways of securing it.

The question of what are the best varieties to grow for the two different purposes is not an easy one to answer, for there are many considerations which must be taken into account. The chief thing to be borne in mind is that our supplies of available timber are fast dwindling, and it is obvious that we must grow trees which are going to be of use in the years to come. For distant shelter, Pinus insignis is quite effective, but at the best provides only a second-grade milling timber; macrocarpa is a much better proposition, for good mature heart makes very good posts, which will last a long time, but sappy timber from this tree will not last any time. The tree makes very good distant shelter, as it grows high and also fairly thickly. The Tasmanian gum, which was brought into New Zealand because of the similarity of climate, especially rainfall, has not proved as satisfactory as was expected, and the McArthurii has been found more suitable. In the speaker's opinion, however, one could not go wrong with macrocarpa. For "near shelter" he had various recommendations to make, though he thought that the Lawson cypress was the best. It required plenty of protection in the sapling stage, and here again the macrocarpa was as good as any. Mr. Birch stressed the necessity of cutting these out before they were allowed to get too big. When they had reached the stage when they could be felled with two good blows with the axe, one on each side, it was time they came out. Good use could then be made of them as stakes. It is necessary to fence in all "near shelter," otherwise its main effect will be lost.

Mr. Birch thought that much greater use would be made of pampas grass. Selection was being made of the more leafy strains, and he was of the opinion that it would prove a valuable addition to our fodder crops. Besides its use as fodder, it provided excellent "near shelter," and so served a dual purpose. As it grows well up off the ground, it does not become contaminated with parasites as does a pasture, and a stand of pampas is an excellent thing to wean calves on to. Care must be taken to ensure that the succulent fodder is available at the right time; with proper management two grazings annually can be taken off pampas, and each grazing provides a great volume of feed.

Planting in rows, which allowed of cultivation with the tractor, was by far the best method. He had no doubts that with experiment and selection pampas grass would prove a very useful addition to our pastures, and its value as shelter had also to be taken into account.

—Malcolm F. Gray, Hon. Secretary,
Marton Young Farmers' Club.

1, Aerial view of homestead Puketutu Island stud farm. 2. Some of the fine Ayrshire herd. 3. Stud Southdown sheep.

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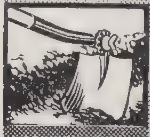
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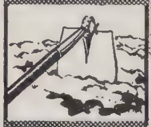
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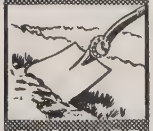
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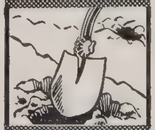
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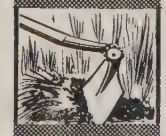
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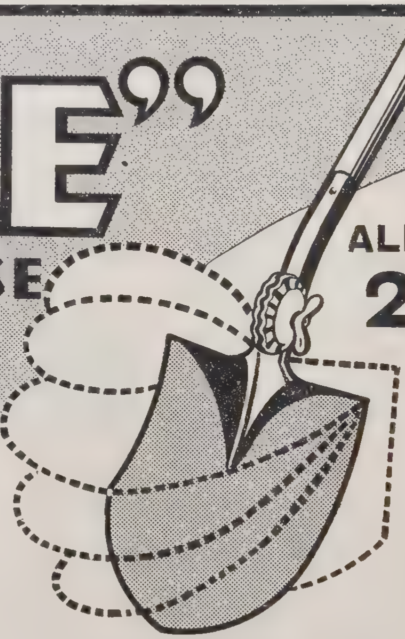

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Reports on Club Activities

WESTERN SOUTHLAND

Seaward Downs.—Newly-formed club. Officers elected: Advisory president, Mr. J. McKenzie; chairman, J. D. Wylie; secretary and treasurer, H. Howden. Eighteen members enrolled at the initial meeting. At a subsequent meeting an interesting talk was given by Mr. W. L. Harbord, Department of Agriculture, on "Turnip Seed." The membership had increased to 29, of whom 28 were present at the meeting.

Dipton.—Team selected for the inter-club basketball competition. Discussion regarding the coming Y.F.C. agricultural education course conducted by Lincoln College lecturers. Nine members present out of 12.

Tokanui.—The educational course to be held at Invercargill was discussed. Arrangements for future lectures. Ways and means of raising club funds discussed. As no speaker was available, the members held a general discussion on topical subjects. Attendance of eight members out of 21.

South Hillend.—Another newly-formed club. Officers elected: Advisory president, Mr. H. D. O'Neill; chairman, John Cunningham; secretary and treasurer, T. Hogg. Eighteen members were enrolled at the initial meeting.

Southland Technical College.—Club entries in the basketball tournament dealt with. Report on meeting of Western Southland District Committee. Lecture by Mr. McDonald on "Plough Setting." Attendance of 80 out of a total membership of 85. At the previous meeting a film entitled "Save Our Soil" was exhibited, 81 members being present.

Woodlands.—Discussion on proposed basketball and football to be held in near future on an inter-club basis; decided that football was out of the question unless played as a seven-a-side. Details of the three-day agricultural course to be held in Invercargill were read out, and all members seemed keen to attend. At the conclusion of the business the meeting combined with the Farmers' Union for a demonstration by Mr. J. Gibson Smith, a well-known sheep farmer of Dacre, on "The Points of a Sheep and how to Improve the Wool." Mr. Smith brought with him two sheep on which to demonstrate. There was an attendance of 10 out of 16 members.

SOUTH OTAGO

Clinton.—Arrangements for a club concert. Visit to be made to the Warepa Club for a debate. Address by Mr. Wightman on goldmining in New Guinea. Fifteen members present.

Warepa.—Arrangements for club ball, and for a debate with the Clinton Club. Working bee to be held in the near future to tidy up the cemetery, look after trees, etc. Interesting talk by Mr. McD. Millar, Lower Clutha Trust engineer, Balclutha, on his experiences in the recent disastrous flood in the Stirling, Kaitangata, Puretai, and Inch Clutha districts. Seventeen present out of 32.

DUNEDIN

Mosgiel D.H.S.—H. Browne appointed treasurer in place of M. Pickering, retired. Members badges to be obtained. Suggestions put forward for use of club's surplus funds to promote activities, and it was agreed to devote money towards a reference library, to put small sums aside for the purchase of apparatus, and to assist with travelling expenses. Report by the chairman on the recent meeting of the Otago-Southland Council. He dealt with club reports, and expressed the hope that in the future a decided improvement would be shown in the meetings of the club, suggesting that more meetings should be held and that debates and talks by club members would be more prevalent. It was decided to hold a debate at the next meeting, the subject to be connected with the pooling of the use of heavy farm machinery, this matter having been very fully discussed at the council meeting. Forty-four members present out of 49.

West Taieri.—Debate between a club team and the Taieri Aerodrome Y.F.C., the subject being "That the Co-operative Ownership of the Heavier Types of Farm Machinery by Two, Three, or Four Farmers (who could work together) Would Result in the Better Economic Development of a Great Deal of Agricultural Land in New Zealand." Speakers were: Affirmative, LAC Clayton, LAC Scott, and LAC Mills (Aerodrome Y.F.C.); negative, K. W. Reid, A. L. Robertson, and R. W. Young (West Taieri). Mr. A. C. Cameron acted as judge, giving the award to the Air Force team with 196 points to West Taieri's 176. In his report of the activity, the club secretary suggests that if any club is planning to hold a debate, this particular subject should be considered, as it is one that is vitally important at the present time, especially in view of the fact that the Y.F.C. Federation is endeavouring to do all that it can to assist the rehabilitation of ex-servicemen.

NORTH OTAGO

Enfield.—Replies received to letters of sympathy sent to two club members. Discussion on fancy dress ball to be held to raise funds for the club's Roll of Honour board. Talk by Mr. T. A. Sellwood, Department of Agriculture, on "Pastures." Seventeen members present out of 25.

Five Forks.—Invitation to the Enfield Y.F.C. ball to be acknowledged. Three new members enrolled. Discussion regarding Roll of Honour board. Committee appointed to make arrangements for a field day; a dance to be held in the evening. Talk by Mr. J. Kingan, president of North Otago Farmers' Union, on "Farming in Britain." Eleven present out of 20.

SOUTH CANTERBURY

Cannington.—Arrangements for annual ball. The chairman drew the members' attention to the clothes drive for UNRRA. Debate to be held at next meeting to select a team for the district debating contest. Mr. D. W. M. Burnett gave a very interesting account of his recent trip to Australia. In proposing a vote of thanks H. Squire mentioned that Mr. Burnett was showing a very enterprising spirit in setting up a valuable Merino stud. There was an attendance of 18 out of 21.

Geraldine.—Discussion regarding tree-planting; decided to approach the Geraldine County Council for a suitable reserve for the purpose. Talk by Mr. F. J. E. Smallbone on "The Broken Hill Proprietary." Fifteen members present out of 36. At the previous meeting Mr. W. S. Crotty gave a talk on "Red Clover and the Bumble Bee." Eighteen members attended. At other meetings a talk was given by the club chairman, P. Temple, on the Y.F.C. movement, and movie films dealing with "Erosion" were exhibited by Mr. E. N. J. Hannah, agricultural instructor, District High School.

Geraldine D.H.S.—A club has been formed at the Geraldine District High School. Names of officers elected will be published at a later date.

Pleasant Point.—Three debates were held for the purpose of selecting a team for the district debating contest. The subjects and winning teams were as follows: "That Farming Today is More Difficult than it was 50 Years Ago"—won by affirmative team, E. L. Esler, J. W. Crombie, J. B. Stewart; "That the Tractor is Superior to the Horse"—won by affirmative team, D. Squires, I. Davey, K. Davey; "That Modern Cultivation is More Beneficial to the Soil"—won by negative team, W. Skinner, F. Honeywell, J. Olliver. The Rev. Oakley kindly acted as judge. The members of the team finally selected were R. S. France, J. W. Crombie, and W. Skinner. There were 30 members present out of 44.

Waihaorunga.—Address by Mr. L. W. McCaskill, of Lincoln College, on "Rural Education." Twenty members present out of 35. The club held two debates recently: "That Hotels should Reopen in the Evenings"—won by negative (B. Armstrong, J. Bell, M. Gardiner), 343 points; affirmative (I. Hurst, R. Rickman, A. McKenzie), 278 points; "That the Majority of Farmers could Profitably Employ More Permanent Labour"—won by affirmative (C. W. Whatman, S. Harris, W. Burnie), 281 points; negative (G. Armstrong, A. Armstrong, I. Armstrong), 250 points. Mr. A. Hurst kindly acted as judge. Supper and a dance brought the evening to a close. The club held a meeting at Waihao Downs with the idea of interesting young men in the district in the Y.F.C. movement, and if possible, of forming a club. Mr. D. Wraight exhibited a film on "Vegetable-growing in the U.S.A."; he also addressed the meeting on the "Financial Side of Agricultural Machinery," and "The Rotation of Crops." There was an attendance of 70.

MID-CANTERBURY

Ashburton D.H.S.—Prepared speeches by members as follows: "Coal" (D. Prebble); "Borer" (D. H. Gill); "Timbers" (C. Gallagher); "Sheep Dogs" (P. Martin); "Dairy Farming" (J. Cleland). Attendance of 13 out of 17.

Hinds.—Business meeting. Decided to hold the impromptu speech contest at the next meeting, Mr. D. M. Bruce to be asked to act as judge. Eleven members present out of 19.

CHRISTCHURCH

Christ's College.—Lecture on "Meteorology and the Weather, and how it Affects Farming," by Mr. Baird, Director of the Christchurch Magnetic Observatory. There was a full attendance of 83 members.

Darfield.—Four new members enrolled. Final arrangements for football match with Ellesmere Y.F.C. Lecture by Mr. J. W. Calder, of Lincoln College, on "Pastures and Small Seeds." Thirty-two members present out of 35.

Ellesmere.—Suggestions regarding a special Y.F.C. class at the coming Christchurch Show for small seeds. Short talks by members on "Handy Hints and Ideas"; speakers, B. K. Wagner, L. Tod, A. J. Reid, E. Overton, O. J. Osborne, A. D. Lambie, F. Cridge, P. Abbott, T. E. M. Brookes, G. Boon, B. Christey, H. G. Stephens, D. Hurford, G. W. R. Osborne, and S. S. Ford. There was an attendance of 21 members out of 56. At the

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previous meeting one new member was enrolled; B. K. Wagner and T. E. M. Brookes elected captain and vice-captain respectively for the football match with Darfield Y.F.C. Address by Mr. L. W. McCaskill, Lincoln College, on "Problems of Rural Education." Some lantern slides were exhibited, showing recent floods in the Ellesmere district. There were 33 members present and a number of visitors.

St. Andrew's College.—Presentation to Mr. E. Taylor, the head gardener, who is leaving. Arrangements for a football match with Darfield Y.F.C.; dance to be held. Talk by Mr. Taylor on "Trees and Gardening in Different Countries." Forty-one present out of 58.

NORTH CANTERBURY

Amuri.—This club resumed activities recently with an initial membership of 30, which has since been increased to 37 members. Officers elected: Advisory president, Mr. R. Bethell; chairman, W. P. Belton; secretary, G. H. Anderson; treasurer, N. McIntosh. At a subsequent meeting arrangements were made for a field day and for a dance; an address on "Crops" was given by Mr. E. G. Smith, Department of Agriculture, 29 members being present.

Cheviot.—Arrangement for club ball. Short talks by members to be given at next meeting. Address by Mr. W. S. Robinson, Lincoln College, on "Diseases of Sheep." Twenty members present out of 28.

Hawarden-Waikari.—Final arrangements for club ploughing match. Stock-judging field day to be held. Report by the advisory president, Mr. J. W. Earl, on the annual general meeting of the federation at Hamilton. The speaker also gave a short talk on his visit to the Animal Research Station at Ruakura. Attendance of 27 out of 30.

Oxford.—General business; dance accounts reviewed and passed. Address by Mr. Garret, Lincoln College, on "Farm Finance." In subsequent general discussion the general opinion appeared to be that present-day costs were rather high, and that it was difficult for a young man to start farming today without considerable financial backing. There was an attendance of 13 out of 30. At a previous meeting Dr. Robertson, of Lincoln College, gave a lecture on "Diseases of Livestock."

Scargill-Omihi.—Decided to donate £2 2s. to the Canterbury Progress League. Arrangements for annual ball. Three new members enrolled. Address by Prof. E. R. Hudson, of Lincoln College, on "Agriculture and National Life." Attendance of 27 members out of 28; 13 visitors also present. At the previous meeting there was a discussion on the Centennial Memorial tree plot laid down in 1940. Lantern lecture by Mr. L. W. McCaskill, Lincoln College, on "Soil Conservation." Twenty-seven members present.

BLENHEIM

Flaxbourne.—Appointment of delegates to attend district meeting. The date for the R.S.A. debate was fixed, and a practice debate held between two junior teams. Ten members present out of 28. At the previous meeting a motion of sympathy was passed for the family of the late Mr. W. H. Butt, who was a keen supporter of the Y.F.C. movement. Challenge to a debate with the Seddon Club accepted. Address by Mr. G. D. Shand, Inspector of Stock, on "Hogget Mortality and its Prevention." Fifteen members attended.

NELSON

Moutere.—This club has recently resumed activities, eight old members and a new one being present at the initial meeting, which was attended by the district Y.F.C. secretary, Mr. D. E. Merry, Department of Agriculture. Officers elected: Advisory president, Mr. R. Teece; chairman, B. Benseman; secretary and treasurer, C. J. Teece.

Murchison.—General business. Arrangements for visits to farms in the district, in conjunction with the Farmers' Union. Fourteen members present out of 36.

Nelson R.N.Z.A.F.—Recent activities include visits to the following: Cobb hydro-electric power plant; Orchardists' chemical works at Mapua; Onekaka iron works and Golden Bay cement works; Mr. A. Newman's property at Brightwater; National Tobacco leaf store, Motueka; Government Tobacco Research Station, Motueka; Buxton's hop store, Nelson. In addition to field days, which are usually held once a fortnight, meetings are held every Wednesday evening, addresses being given by local speakers. The membership of this club is at present round about 30. The present secretary of the club is K. W. Cooper, who will be remembered as an old stalwart of the Gisborne Club, and a prominent member of the Wellington Y.F.C. Council.

HOROWHENUA

Levin.—Arrangements for field day and for speaker at next meeting. Interesting talk by Mr. H. Bishop on "Calving Problems." There were 12 members present out of 31. The field day was held on Mr. Goulter's stud farm, "Takapau," at Manakau; demonstrations were given on Southdowns and Romneys (Mr. A. D. Walker, Longburn), dairy cattle (Mr. R. W. Evands, Levin), parasites and footrot in sheep (Mr. Goulter), wool classing (Mr. Frame, Wellington), and Tamworth pigs (Mr. Goulter and a member of the farm staff). There was an attendance of 20 club members, two visiting members, and four older farmers. Judging competitions were held during the day, resulting as follows: Sheep, J. Campbell, 1, S. Lancaster, 2, M. Staples and S. Gimblett, equal 3; dairy cattle, H. Gibbons, 1, B. Webb, 2.

MANAWATU

Halcombe.—Recently revived. Names of officers elected available in next issue.

Kimbolton.—Recently resumed activities. Full details for publication next month.

Oroua Downs.—General business. Decided to revive the Miniature Rifle Club under the direction of the Y.F.C. dance to be held. The evening was devoted to a question box, which proved very interesting and successful. Ten members present out of 29.

Pohangina.—Arrangements for speaker at next meeting. Field day held at Massey College; the party was conducted round the buildings and farm by Mr. L. A. G. Barrett. Nineteen members attended out of 32.

Rangiotu.—Recently revived. Officers elected: Advisory president, Mr. F. Bond; chairman, I. Te Rangi; secretary, A. J. Legg; treasurer, D. Robinson. Sixteen members were enrolled at the initial meeting.

Rangiwahia.—This club has recently resumed activities. Names of officers for publication next month.

Rongotea.—Three new members enrolled. Address by Mr. N. Inkpen on "Banking, Lending and the Cheque System." Twenty-six members present out of 35. At the previous meeting a challenge from Kairanga Y.F.C. to a football match was accepted. Mr. E. P. Neilsen, advisory officer, Dairy Board, gave a talk on "Sire Survey Work" and its importance in the direction of increasing the output of our dairy herds. Seventeen members attended.

Te Arakura.—This is a new club recently formed near Palmerston North. Details of officers elected will be available next month.

WANGANUI

Bulls.—Further preparations for field day to be held at Mr. Eglinton's farm. First round in the Wanganui district debating contest (southern zone), Bulls v. Marton. Subject, "That it is Sounder Economy to Increase the Carrying Capacity of Existing Grassland than to Bring New and Derelict Land into Production." Marton team (negative), Morrison, Vile, and Miller; Bulls (affirmative), Thorby, Avery, and Clark. Mr. R. Trott, of Marton, acted as judge and gave the decision to the Bulls team. Present at the meeting were Messrs. S. Freeman (Dominion Organising Secretary) and A. V. Lithgow (hon. secretary, Wellington Council), who both spoke on the Y.F.C. movement, and later exhibited some interesting sound films. Twenty members present, with six visiting members from Marton Y.F.C.

Marton.—Preliminary arrangements for a visit to Massey College. Invitation from Feilding Club to assist them at their proposed Spring Show. Discussion on Hunterville's field day and dance. Final arrangements for club dog trial. Report on annual dance; profit of approximately £7 10s. District debating contest discussed; withdrawal of junior team accepted with regret. Donation received from club patron. Two new members enrolled. Discussion on club library; selection of books left to committee. Address by Mr. A. C. Birch, Marton, on "The Use of Pampas Grass and Shelter Trees." There was an attendance of 22 members out of a total of 31.

CENTRAL TARANAKI

Pukengahu.—Business meeting. Final arrangements for a combined visit with the Alton Club to Massey College. Preparations for a club dance, proceeds to go to fund for club servicemen. Letter of sympathy to the family of the late Mr. F. Rae. Letter of congratulation to Ft./Lt. R. L. Bremer on his promotion and decoration; Ft./Lt. Bremer was a keen member of the club prior to going overseas, and has held executive positions. General discussion on club affairs, followed by supper.

NORTH TARANAKI

Karawaka.—This club has decided to resume activities. Full details will be published next month.

Mangamahoe.—This club has resumed activities. Officers elected: Advisory president, Mr. A. H. Jordan; chairman, B. Monk; secretary and treasurer, L. Mace. Ten members present at the initial meeting.

WAIRARAPA

Carterton.—H. McKenzie reported on the annual general meeting of the federation; five members of the club journeyed to Hamilton for the meeting. Two guineas donated to the Wairarapa and East Coast P. and A. Society. Mr. J. F. Pointon gave a very interesting talk on his experiences in the Normandy landings. Attendance of 14 members out of 25.

Masterton.—Suggestions for a club Y.F.C. banner. Arrangements for annual dance. After a series of short impromptu talks by members, teams were selected to debate against Carterton Y.F.C. Junior team: Evans, Heckler, Morrison, McCracken; senior team, A. James, E. Cameron, E. Bannister, R. Wilton. Twenty-seven members present out of 61.

SOUTHERN HAWKE'S BAY

Ballance.—Arrangements for a dance. Lantern lecture by Mr. F. J. S. Holden, Department of Agriculture, on "Mole Draining." Sixteen members present out of 22.

Mangatainoka.—Report by chairman on field day held at Woodville, and of debate against Ballance in which Mangatainoka was successful; also report on special meeting of district committee held at Woodville. The debating team for the final of the district contest against Dannevirke Y.F.C. was selected. Lantern lecture by Mr. F. J. S. Holden, Department of Agriculture, on "Liquid Manure." Twelve members present out of 15.

NORTHERN HAWKE'S BAY

Wairoa.—Mr. J. L. Sunderland, chairman of the Wellington Y.F.C. Council, addressed members on the need for the revival of clubs in recess and the formation of new ones, and mentioned the Roll of Honour plaques and the council's weekly radio session from 2ZA. Talk by Mr. J. M. Mowatt, registered surveyor, on "Draining." Talk by Mr. J. N. Spooner, inspector of stock, on "Liver Fluke." Eight new members enrolled. There was an attendance of 26. The club membership now stands at 57, with nine members still overseas.

POVERTY BAY

Gisborne D.H.S.—New chairman, F. Jones, elected. Arrangements for visit to a dairy farm. Short talks by members as follows: "Farm Dog" (D. Allen); "Farm Accidents" (G. Cameron); "Bad Feet in Dairy Cows" (B. Doleman). Interesting talk on "Fencing" by Mr. Sewell, a local farmer. Attendance of 58 out of total membership of 60.

KING COUNTRY

Taumarunui.—This club has recently resumed activities. Full details of officers elected will be available next month.

TE KUITI

Otorohanga.—Address by Mr. H. E. Walters on the Farmers' Federation. Thirteen members present out of 27. At the previous meeting a member was selected to give a radio talk from 1YA, Auckland. Mr. G. H. Baucke, the local blacksmith, gave a most interesting and instructive talk on the bad habits of the horse and how to correct them and on the care of farm implements. There was an attendance of 12 members.

Te Anga Central.—Address by Mr. Haycock on "Common Law." At the previous meeting Mr. Montgomery spoke on "Insect Pests," basing his talk on recent work carried out by the Scientific and Industrial Research Department. Attendance of 12 and 13 members respectively out of a total of 18.

WAIKATO

Cambridge.—Discussion on the Y.F.C. Memorial Scheme; arrangements to be made for collecting funds. Copy of "Principles of Animal Production" to be obtained for club library. Report by G. Goodwin, club delegate to the local calf club committee. Interesting demonstration by Mr. G. A. Walsh on "Knots and Splicing." Eighteen members present out of 34.

Okoroire.—Talk by Mr. Crabb, Livestock Division, Department of Agriculture. Attendance of 25 members out of 41.

Tahuna.—Club pennant to be purchased, to assist with publicity. Club debate to be held, the subject being "The Pickup v. Stationary Baler"; teams were selected, and Mr. D. E. Waide, advisory president, agreed to act as judge. Two new members enrolled. At the previous meeting four new members were enrolled. Presentation to Mr. Elliot, of Hoe-O-Tainui, for his and his son's services to the club. Arrangements for a further field day. Report by Mr. D. E. Waide on the annual general meeting of the federation held at Hamilton; members were particularly interested in the land settlement scheme. Fourteen present out of 26. A very successful field day was held on the farms of Messrs. Elliot and Laing. In the morning Mr. Hart, of Morrinsville, demonstrated on Mr. Elliot's Friesian herd, and in the afternoon Mr. Southee, of Kiwitahi, demonstrated on Mr. Laing's Jersey herd. There was an attendance of 12.

Te Awamutu.—Report by H. Donaldson on the new rules for the calf competition. Report by R. Mandeno on memorial scheme. Two debates: Junior, "That Dairy Farming Offers Greater Opportunities than Sheep Farming in the Waikato to Returned Servicemen." Speakers, N. Verity, R. Johnson, W. Long (affirmative); N. Pethybridge, H. Donaldson, S. Cummins (negative). Won by negative. Senior, "That Community Amenities Should be Established in Rural Areas in Preference to Towns." Speakers, A. Smart, T. Ray, E. Fitzpatrick (affirmative); J. Finn, D. Ellis, R. Hodgson (negative). Debate drawn. There was an excellent attendance, 44 members being present out of 45. At the previous meeting the chairman, C. Eyre, gave a report on the annual general meeting of the federation. A new calf competition committee was appointed: C. Eyre (ex officio), H. Donaldson, D. Hodgson, D. Ellis, with Mr. J. S. Pattison acting in an advisory capacity. An address on "Farm Economics" was given by Mr. G. Waring. Attendance of 38 members.

WESTERN BAY OF PLENTY

Kati Kati.—A. W. Earl appointed secretary to fill position vacated on the resignation of W. Hume. A discussion took place concerning the poor attendance at meetings; decided to make every effort to arouse greater interest. Mr. H. B. Capamaigan to be asked to address the next meeting, giving some of his experiences overseas. At the previous meeting it was decided to default in the second round of the debating contest owing to shortage of time for preparation of the subject. There was an attendance of seven out of 25 at both meetings.

Paengaroa.—Four new members enrolled. Arrangements for annual dance in aid of hall society. Decided that birthday dance be run in aid of Y.F.C. Memorial Scheme. Mr. Hodgson, bacteriologist from the Rangitikei Dairy Co., assisted by Mr. Whitham, addressed the members and exhibited interesting films dealing with mastitis; he also demonstrated the detection of mastitis in milk which appeared pure. There was an attendance of 30 members out of a total of 69 (eight still overseas) with 27 local farmers present by invitation.

Tauranga.—Report on recent successful club ball held in aid of the Y.F.C. memorial funds. E. Kirk appointed to represent the club on the Tauranga Boys' and Girls' Agricultural Clubs Committee. Arrangements for a gift evening and social in honour of L. Ferguson, a past chairman of the club, who was recently married. Fourteen present out of 32.

Welcome Bay.—One new member enrolled. Arrangements for a dance. The chairman, J. R. Wright, outlined a scheme whereby funds could be raised by the rearing of heifer calves. Lecture by Mr. A. V. Allo, Department of Agriculture, on "Feed Flavours in Cream." The speaker dealt principally with the flavours caused by cresses and clovers, and explained methods of pasture control by harrowing and proper grazing to prevent the ingress of weeds. Mr. Allo illustrated his lecture by lantern slides, and answered a number of questions at the conclusion. There was an attendance of 20 out of 28.

EASTERN BAY OF PLENTY

Opotiki.—This club has recently resumed activities. Officers elected: Advisory president, Mr. B. Black; chairman, H. D. Bennett; secretary, J. R. Fisher. There was an attendance of 23 at the initial meeting. At a subsequent meeting delegates were appointed to act on each of the two local calf clubs. Mr. E. R. Marryatt, Department of Agriculture, gave a very interesting lantern lecture on "Pasture Management during Winter Months," and Mr. Pat Nichol, vice-chairman of the Auckland Y.F.C. Council, gave a comprehensive address on the "Aims and Objects of the Y.F.C." Mr. Gordon Spratt, of Te Puke, was also present, and outlined the proposed Y.F.C. Memorial scheme, putting forward all the ideas that had been suggested in regard to the form that the memorial should take. The full membership was present.

Opotiki D.H.S.—A club has been recently formed at the District High School, Opotiki. Officers elected: Advisory president, Mr. C. Gordon; chairman, L. Black; secretary, A. Peterson; treasurer, D. Scott. The initial membership of the club was 36.

Waimana.—Business meeting. Discussion regarding the rules for a cup presented for competition in the local schools. Attendance of 12 out of 21.

AUCKLAND

Clevedon.—At a social evening, to which young women were invited, carpet bowls, table-tennis, and cards were played. Ten members were present out of 23, as well as a number of visitors.

East Tamaki.—Report from social committee on the annual dance; profit of £14 8s. 11d. Three new members enrolled. The chairman reported on the annual general meeting of the federation held at Hamilton. Mr. E. D. Wilkinson addressed the members on "Farm Accountancy"; he stressed the necessity for strict accounting and a correct balance sheet, and also quoted figures from the 1944 Year Book showing the effect of the slump (1933) on the farming industry. There was an attendance of 28 members out of a total of 38. A visit was paid by members to Mr. D. A. Jones's farm; the visitors inspected well-grown Lawsoniana and cedar hedges, as well as small eucalyptus plantations. The owner stressed the value of shelter on a dairy farm. Mr. Jones also showed members his bee-hives and demonstrated the working of his power-driven honey extractor. A visit was also paid to the Reid Rubber factory, where the modern methods of tyre and other farm rubber manufacture were demonstrated, as well as the different stages of the processing of reclaimed rubber. On a visit to the Hume Pipe Co.'s factory the method of welding the re-inforcing wire for concrete pipes, and the manufacture of terazzo benches, etc., created great interest. Sixteen members attended this field day, together with 12 boys from the Howick District High School.

Franklin.—Welcome to chairman and secretary of East Tamaki Y.F.C. (L. W. Gubb and G. W. Guy), and to guests from the Ardmore Air Force Station. Mr. J. Valder, manager of East Tamaki Co-op. Dairy Co., spoke on "The Growth of the Dairy Industry," and mentioned the regulations governing the industry and the various tests in practice to determine quality, grade, and the presence of added water. At the conclusion of his address he answered a number of questions. There was an attendance of 21 members out of a total of 33. This club has recently undertaken to send a member on one night each week to the Ardmore Aerodrome to lead discussions on topics of farming interest with personnel taking farm courses under the A.E.W.S. The members have already been struck by the enthusiasm of those who attend, and have expressed their willingness to continue to assist. The club held a barn dance recently in the Rama Rama Hall. The function was a great success, the gross takings exceeding £54 and the profit to the club was in the vicinity of £37. Visits were paid to the Reid Rubber Mills and the Australian Glass Manufacturers works at Penrose. At a recent meeting it was unanimously decided that club members become "blood donors."

Harrisville.—Arrangements for a dance. Address by Dr. N. Seigel on "Veterinary Work." Fourteen members present out of 17.

Pukekawa.—One new member enrolled. Decided to hold two meetings a month so that more debating can be undertaken. Debate arranged for next meeting. As it was the club's birthday, a social evening was held, which proved a great success. There were 20 members present out of 22; also 20 visitors, including 12 British sailors who were on leave in the district. At the previous meeting a farm-planning competition was inaugurated, each member to put his ideas into a plan of an up-to-date practical farm lay-out, to be judged later. A debate was held, "That Town Life is Better than Country Life." Speakers, H. Geraghty, J. Duno, F. Lozell (affirmative); H. Cathcart, B. Orr, M. Cathcart (negative). Mr. McIntyre acted as judge, and gave his decision in favour of the affirmative team. There was an attendance of 17 members.

Pukekohe East.—Arrangements for a field day. Dance to be held. An address was given by Senior-Sgt. Kelly, of Pukekohe, on "The Formation and Growth of the Police Force." The speaker related some of his own experiences in his younger days in the Police Force. There was an attendance of 23 members out of a total of 30. At the previous meeting an interesting lecture was given by Mr. H. E. Clark, supervisor, Auckland District Pig Council, on "Pampas Grass and Pig Housing." There were 18 members present.

HOW TO BECOME A SHEARER.

Although it is only by practical experience that one can ever become a shearer, the main essentials to be mastered are clearly given in Bulletin No. 246, "Shearing." In addition to a detailed description, the bulletin contains 27 large illustrations showing the correct cuts and method of holding the sheep from start to finish. The bulletin is available from the Department of Agriculture offices at Auckland, Wellington, Christchurch, and Dunedin. Price 6d.

Of all man's works of art, a cathedral is greatest. A vast and majestic tree is greater than that.—H. W. Beecher.

TREES

I HAVE always loved trees. I remember as a child watching the sun set in a blaze of gold and crimson and the first star of evening appear above a row of "fir trees dark and high—
I used to think their slender tops were close against the sky."
I remember the wine-dark clusters of fruit hanging from the branches of the five-fingers which formed our front boundary; furry yellow willow catkins with the bees buzzing all about them; soft rose and white clouds of springtime blossom in the orchard. I used to gather the round red berries from the hawthorns and thread them beadwise into necklaces and bracelets, and the eucalyptus-scented seeds from the blue-gums served as coins when I played shops.

But the tree round which most of my games centred was an old lucerne, gnarled of trunk and sturdy of limb. If you climbed right to the top and maintained your foothold among the foam of leaves, the dip and sway of the boughs in the wind gave you the sensation of being aboard ship on a tossing green sea. Many a pleasant tea-party I enjoyed in the shade of that lucerne, and at one stage it sheltered an Indian wigwam—made of scrim—and later, after a session of adventure tales, I essayed building a "tree-house" in a conveniently-placed fork. The largest branch jutted out from the trunk almost at right angles, an ideal position for a swing. It could be used as a tight-rope, too, when I tried to perform balancing feats like the ones I had seen at the circus. I also mastered the art of turning somersaults while holding on to the branch and then dangling upside down—it was fun viewing the ground from this topsy-turvy angle.

Another vivid childhood memory is of holidaying on a farm where I was given a quaint gable-room at the top of the house. Here the light was always shadowy, being diffused through a leafy screen, for the window looked out on to a huge tree which towered high above the roof. I not only wakened each morning to the joyous matins of the birds, but I could watch them as they sang.

I recollect, also, being taken for a school picnic to some gardens noted for their beauty and unusual botanical features. We had lunch under a tree so gigantic that fifty or sixty children could sit beneath it and be completely hidden from view by its long, pendulous foliage. Unfortunately, when the owner of the property died the estate was sold and cut up for building lots. What a pity it could not have been retained as a public reserve. I never heard what happened to that giant tree—most probably it was sacrificed like so many others to make way for suburban bungalows.

When I was older the addition of botany to the curriculum opened up a whole new world of interest. I not only studied such things as plant classification, seed dispersal, and leaf formation, but I learnt to identify our native trees, to collect specimens of their flowers and fruit and foliage, and press and mount them in the approved manner. Thus, I came to know something of the immense wealth of flora indigenous to New Zealand. It still gives me the keenest pleasure to
"walk through the bush in the sunshine when winter's gloom has fled.

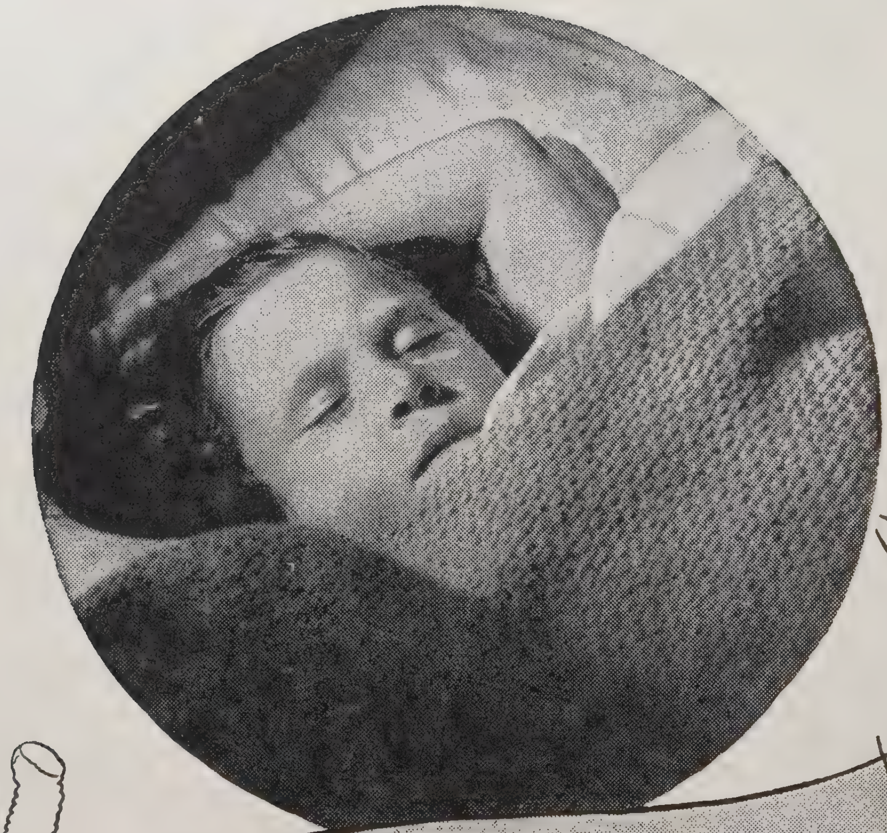
There the tiers of blazing colour range high above your head:
Gold of the drooping kowhai, scarlet of parrot's bill,
Orchids in the gully, snowy ti-tree on the hill.
There are young leaves on the totara, new feathers on the fern,
There are walls of silver lichens where by night the bush lamps burn;
There are mosses, green and gold, with shining velvet sheen,
There are tiny ferns and hanging ferns, from dark to palest green;
There are giant trees and striplings whose fight has just begun
In the race with other climbers all struggling to the sun;
There are quaint puriri blossoms like cups of pearly pink,
Brimming with the nectar that thirsty bush-birds drink.
And up where conquerors sport their leaves and elfin sunbeams play,
In lovely setting, green and blue, the first red ratas spray."

I have always had the good fortune to live among trees. Each window has its vista of green—laurel, lawsoniana, cedar, holly; maple, macrocarpa, blue-gum, cherry. Manuka and matipo make a pleasing contrast; glossy taupata overshadows the kawakawa's heart-shaped leaves; akeake grows closely to form a hedge, and in summer a pohutukawa drops crimson needles upon the grass. My door opens on to a panorama of pines—"You hear the sea
All swelling soft and hoarse
In just one tree . . . .
Pines . . . stir me deep,
That soft, lost roar of theirs;
They never sleep."

Winter gales may not be so severe here as they are in some districts, but occasionally they are violent enough to blow down a tree which is not securely rooted. My one and only poplar suffered this fate.

Storm damage is something which cannot always be prevented, but for people to cut down trees needlessly is sheer desecration. F. D. Ommanney, mourning the unnecessary felling of a fir, expresses the feeling of tree-lovers very aptly: "In order that people who knew not Joseph may hit a ball across a net, one hundred years of patient growth, a miracle of grace and beauty, a benediction of lovely scents and solemn melodies, has been laid low." As for our native bush its preservation is a national duty.

It is indeed cheering to read that last year the Wellington Beautifying Society distributed nearly 8,000 trees and shrubs for planting in civic areas, and is prepared to continue this service to the community. "When we plant a tree, we are doing what we can to make our planet a more wholesome and happier dwelling place for those who come after us, if not ourselves."—Mary.



parents eye view

Angel-child, sometimes . . . little monkey on occasions . . . but always deserving of the best . . . and the best in sleeping hygiene is, of course, Air Cell, the blankets that breathe. Air Cell blankets are twice as warm as ordinary blankets and weigh little more than half as much—just imagine that extra relaxing, refreshing sleep you get with Air Cell. They're showing now in an increasing range in the shops, in lovely pastel tones and with that gorgeous texture that makes them look as comforting as they really are.

AIR · CELL

THE BLANKETS THAT BREATHE

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The Singing Tree

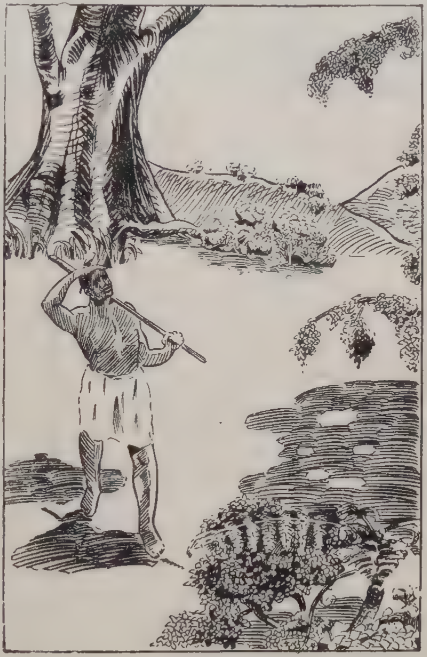
By ENID B. V. SAUNDERS

ARINI Tu Pura was not beautiful. Her face was too oval, too pointed for prettiness, and her hair was short and very, very straight. Her sister, Kahurare, had none of these defects, but was possessed of good looks to such a degree that more than half the young men of the place could be numbered among her admirers.

Accustomed to being overlooked when her sister was about, it was small wonder that Arini had added to her natural reserve of manner a decided love of solitude. Sometimes, when the fact of her loneliness thrust itself too sharply upon her, she would creep away into the cool forest places and the stillness and beauty would capture the soul of her, and presently she would make a little song. And the trees would be in her song and the small grey shadows and the moist brown smell of the leaf mould, so that unhappiness would have no part in the singing at all.

There was one tree she loved better than all the others. Tall and slim-stemmed, it stood where the forest bordered the shores of a lake, its strong leafy boughs spread far over the water. Arini, lithe and agile as any boy, often climbed high up among the branches. And the blue of the sky was the tranquil blue of the lake, and the distant hill ridges would shimmer with haze, and wind and sun would whip the lake ripples to dazzling silver. Then the words would come swiftly into Arini's head like birds winging home through the dusk, and she would sing them to a tune of her own devising. Old Nua, the tohunga, he who had taught her many chants and songs of the tribe, prophesied in this wise: "You do well to hold the tree so dear, O bird-voiced one; for love hides lightly in its leaves, and when the shadows fall across your path then the tree will show you the way of escape."

One day Arini fled to the bush in great trouble. Her sister, for all her prettiness, was exceedingly bad-tempered, and because Arini had not performed some task exactly to her liking, she turned and abused her, even taunting her over her lack of suitors. Wearied with sobbing, poor Arini sought the refuge of the tree. The sunlight wove delicate traceries around her, the sky shone blue through the gossamer network of leaves, and a wind went shimmering by. Some of the hurt and shame departed from her and in their place a melody began to take place. Haunting and wistful, it was in accordance with her mood, but the sweetness of it was beyond all telling.



Now it happened that the chieftain, Tareha, was passing through the forest just at this time and, feeling thirsty, he sent his servant to the lake for water while he himself sat down to rest. Soon the slave came back, saying: "There is something strange happening at the edge of the lake. I can hear the sound of singing, yet though I have searched all about I can see no one. I am afraid."

"Nonsense," said his master, and repeated his demand for water.

Reluctantly the man went, but in a few minutes he had returned, saying: "I can hear the sound of singing more plainly than before, yet I can see no one."

Thereupon Tareha become angry and commanded him to go at once for the water, but the man came back shaking with fear and crying that the place was possessed of an atua, a spirit. So terrified did he look that Tareha went himself to see what it was that had given the fellow such a fright. Presently he heard singing just as the slave had said, and, following in the direction of the sound, he found himself standing at the edge of the lake. Carefully he peered into all the bushes, but no trace of anyone could he discover, and then somewhere overhead the singing started again—the merest whisper of a song, soft, caressing, lilting to a rippling crescendo of sound. Now he could make out the words—exquisite words matching the beauty of the song—words that caught at his heart and lingered in its secret places.

Swiftly he swung himself up into the branches of the huge tree and there, high above him, sat a girl looking out over the water and absorbed in her song.

And suddenly he knew! And the love-song of Tareha, the chieftain, mingled with the clear, high notes of Arini, the flute-like one.

Ecstasy gave to her colouring warm, ivory tintings, deepening the poignant curve of her mouth and making her smile such a vivid, spontaneous thing that her face was more lovely than a flower. Tareha was enchanted and the spiritual quality of his love that worshipped her for her voice alone quickened to a greater, more wonderful emotion—the love of a man for a maid.

As for Kahurare, the newcomer made no response to her beauty, no avowal of homage whatever, and her annoyance was in no way lessened when she learned that her father had promised Arini to him as his wife. Tareha never once wavered in his choice, for he saw Kahurare as she really was, spoilt and jealous of

Maori Lullaby

Hushabye, my sweet brown baby,
Mother watches over thee.
Harken to the riro-riro
In the green-cloud ngaio tree.

When thou art a lovely maiden
Beaded bands I'll weave for thee.
Harken to the riro-riro
In the green-cloud ngaio tree.

Close thine eyes, my sweet brown baby,
Riro-riro sings for thee
Little trembling songs of loving
In the green-cloud ngaio tree.
—Florence Morgan.

I LOVE A TREE

I love a little tree, it looks fair,
Little hands out to the lovely air
That blows in its little branchy hair.

I love a little tree, straight and fine,
Scent in the wind as thin as wine,
White on its wood of frail moonshine.

If I could paint my little tree
All in a picture set to see
Morning and evening, it would be

Tip-toe on laced grass, looking fair,
Little hands out to the lovely air
Blowing in its little brown branchy hair.
—Anthony Michel.

ISSUED BY THE DEPT. OF HEALTH

SCARLET FEVER

Important Advice, Part 2

Part one of our advice dealt with how to dodge Scarlet Fever. In case you fail to dodge it—here is what to do. Unless there is safe nursing, the fever will spread.

Have a separate room or veranda for the patient.

Have what are called "clean" and "contaminated" areas in the room. There should be a small table or washstand for the nurse's wash basin, towel and soap, and a special cupboard or box for the patient's wash bowl, tooth brush and mug, and for a bedpan if needed. Keep the thermometer immersed (and out of reach) for two-thirds of its length in cyllin, 1-160.

Set aside a special mop or broom and duster for the sick-room, and damp-sweep and damp-dust floor and furniture.

Have an overall or gown hung on the back of the door—don this gown and cover the hair with a cap when entering the room.

After attending to the patient, scrub hands and arms for one minute in hot water—remove the gown without touching the outside until the arms are out (the district nurse will show you how if you ask her)—hang up the gown, and rescrub the hands and arms for another minute.

Any utensils should now be emptied and returned to the room.

***Bed linen*—Unstained bed linen should go straight to the boiler, to soak or be boiled, or remain in its container untouched until wash-day; stained bed linen should be soaked in antiseptic (cyllin, 1-80) for four hours.**

Squares of newspaper fastened at one corner into bundles should hang in the "clean" area of the room, for opening doors or handling clean utensils after the hands are contaminated.

Fill a hot water bag by bringing a jug of hot water to the room, protect the jug handle with a square of paper, and fill the bag. Place jug in the "clean" area, and wash hands.

Feeding utensils should be scraped on to a paper and placed in a bowl of cold water, and then boiled for five minutes; or alternately, placed in a bowl kept for the purpose and washed.

Patient's dishes, tea-towel and dishcloth must be kept separate.

After these operations, and after any procedure in the sick room, always wash the hands thoroughly.

By following these instructions, Scarlet Fever can be isolated within your own home.

22a

FOR A HEALTHIER NATION

others, in spite of her good looks, and so he troubled about her not at all, and he and Arini went forth to their happiness.

Alas! that happiness was short-lived. A raid was made on the tribe of Tareha by an enemy band, and they immediately planned to avenge the attack. The women folk anxiously waited the return of the warriors to the kianga, the village, but when at last they came they walked slowly and in grief, for Tareha, their chief, had paid the price of victory with his life.

All feeling seemed to die out of Arini. Gradually one thought shaped itself in her mind—the tree, the tree whence had come her happiness, the tree would show her the way of escape. Away into the bush she went, on and on, caring naught for hunger or fatigue, never stopping till she was secure among the topmost branches of the tree-of-dreams. The face of Tareha seemed to laugh at her from the shadowy ripples of the lake, and the prophecy of the ancient priest was fulfilled and the way of escape made plain. Music trembled on her lips, beautiful and unutterably sad—a song of farewell, and at the end joyousness stole in till all the sadness had gone, and, standing poised an instant on the bare branch tip, she slid smoothly down into the cool grey water. The quiet depths closed over her and the soul of Arini took flight to join Tareha in the dim Reinga, the Place of Departed Spirits.

And a wind sprang up and the sound of singing swept through every leaf and branch, so that people passing by called it the Singing Tree. Henceforth it was treated as tapu, as sacred, and even now in these times of encroaching settlement and dwindling forests, the tree still stands by the lake edge, untouched by axe, unharmed by fire. The Maoris say that misfortune will befall the disturber of its branches, for sometimes in the wind can you not hear the sound of singing, haunting and sweet beyond all telling? Then you know that Arini, the bird-voiced, and Tareha, her lover, have crept back for a space to the place of their happiness—the Singing Tree.

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Making Food Go Further

By NORMA METSON, *Rural Sociologist,*
Department of Agriculture, Wellington.

WE know that winter in Europe is going to mean starvation for millions of people, in spite of the help that can be provided by UNRRA and other relief agencies. We are beginning to realise the meaning of the facts revealed at the Hot Springs Conference on Nutrition and Agriculture—"That two-thirds of the people of the world, including many who spend their lives on the land, raising food, have never had enough to eat." "That there has always been widespread malnutrition in all lands, even the most prosperous, and that in many lands there has always been actual hunger, and periodic famines that take the lives of millions." We have been assured that ships can be made available to transport all the food which we can spare. Increased production is, of course, the only permanent solution for these problems, but more economical consumption, in a country such as ours, can make a definite contribution; and, what is more, its effects would begin at once.

WHAT are the facts about food waste? Here is one story with a sufficiently obvious moral. A few months ago a group of people decided to try to find some way in which they could make a further contribution to the war effort. As they were all busy people they arranged to meet at luncheon to discuss possible plans. **The amount of food wasted in the preparation and serving of that luncheon was over ¼lb. for each person present.**

It is probable that on an average every two families in New Zealand could keep an extra person on the food they waste—and that would amount to feeding a city of 200,000 people. The United States estimated that in 1942 they wasted a quantity of food which would have been sufficient to feed their armed forces and meet their commitments under lend lease. Because of our smaller population in New Zealand our grand total would not be so impressive, but proportionately our food waste is just as great.

Skimping with food is against our dearest traditions, but most families could economise in food consumption in one or more of the following ways without any appearance of skimping. It is essential, however, at the beginning to distinguish between true and false economy. It is false economy, for example, to cut down the use of an essential food like milk. It is true economy to make more use in cooking and in drinks of skim-milk which would otherwise be wasted, and to feed fowls on any scraps which human beings really cannot consume.

Meal Planning

The basis of economical food use is meal planning, and meals thought out for a day, or, better still, for a week in advance are likely to be better balanced and to make better use of available food than those whipped up on the spur of the moment. Well-planned meals will take account of the foods required by family members and provide them economically. Here is a "yardstick" by which to measure daily meals. It shows the daily quantities required.

Milk: Adults 1 pint, children 1¾ pints.

Eggs: 3 or 4 times per week if supplies are available.

Meat: 1 serving.

Cheese: 1oz.

Vegetables: 2 servings, 1 green or yellow.

Fruit and tomatoes: 2 servings, 1 a good source of vitamin C.

Potatoes: 1 or more servings.

Fats—butter if possible: 1 to 2oz.

Bread and cereal: At least half the amount eaten to be in enriched or whole grain form.

Sugar, fat, etc.: To satisfy appetite.

Source of vitamin D: Sunlight or fish liver oil.

If eggs are not available, use more cheese and dried legumes (peas, beans, and lentils).

Further details of meal planning will be published in later "Journals," and there are excellent menus in the Health Department's booklet on "Good Nutrition."

Judge Amounts Carefully

Careful judgment of quantities when preparing and serving food helps to avoid waste. In many farm homes it is routine to provide for two or three more people than are normally expected at a meal, but unheralded guests are less likely now than in the days when petrol was plentiful. Mothers who have had large families often find it hard to cut down their scale of cooking when the family is no longer at home. The problem of food pushed to the side of the plate and left uneaten because somebody wasn't feeling hungry can be overcome by enquiring into the state of appetites before the meal is served, or by starting out with fairly small first servings and making provision for second helpings for those who want them.

Left-overs

Left-overs—the small pieces of this and that which are left in the saucepans and serving dishes at meal times—are a continual bane to many housewives. They don't like to throw them out because it seems (and is) a waste of good food. But they find great difficulty in getting rid of them in any other way. Better judgment of quantities to be cooked in the first place will help, but there are many ways in which left-overs can be used in attractive meals. Vegetables are easy. They can go into soups, stews, salads, and savoury tea or breakfast dishes. They can be chopped and seasoned for sandwich fillings, or used to make scrambled eggs or omelettes more substantial. Pumpkin suitably treated can make a filling for pies and a delicious lemon honey spread. Most housewives can deal with meat adequately, but it is worth remembering that quite small pieces can be cut fine and used for flavouring soups or dishes where the main ingredients are vegetables. Puddings are a little more difficult, but fruit can always be used up for breakfast, or set in jelly or fruit whips, while steamed or baked puddings can be crumbled and added to custards, pie fillings, and so on.

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A good home garden provides fresh supplies and eliminates marketing and transport costs.

[N.Z. Dept. of Internal Affairs photo.

Correct Cooking

Correct methods of preparation and cooking are also of the greatest importance in preventing waste, particularly with vegetables. Vegetables are mainly important in the diet for the vitamins and minerals they contain, but unfortunately many of the practices used in preparing and cooking vegetables result in losses of these valuable substances. Preparing vegetables long before they are needed, and soaking them in cold water, keeping them hot in the oven or on the back of the stove, over-cooking and, above all, throwing away the cooking water should be avoided, as they all cause serious losses. Waste in peeling, cleaning, and otherwise preparing foods should be reduced to a minimum. It should be remembered, too, that foods which are well cooked and served are digested more easily and efficiently, so that the body is able to make the best use of the material it is receiving.

Home Food Production and Preserving Surpluses

Home production of foods eliminates the real cost of transport and marketing; it ensures that supplies are fresh when used, and it usually leads to larger quantities being available to the family than they could afford to buy. Wastes, however, are likely to occur because of difficulty in coping with seasonal surpluses. No matter how excellent and garden-fresh the cabbages, gooseberries, or pumpkins, they become monotonous if served day after day. It is therefore most important that the farm garden should be planned to avoid gluts, and also that reliable methods of food preservation should be known and practised. This will result in fresh supplies being available over a longer period, with generous supplies of preserved foods to supplement them in times of relative scarcity.

Careful Buying

Careful buying helps to eliminate waste in several ways. It cuts down unnecessary waste in shops which occurs because people handle and bruise food (again fruits and vegetables particularly) which they are not going to buy. It ensures that no more is bought than can be conveniently used or stored at one period, and so cuts down losses through food going bad or deteriorating before it can be used. It reduces the demand for luxury and out-of-season foods, which are costly in productive time and labour as well as money, and diverts it towards foods which are cheap and plentiful. It chooses appropriate grades of different commodities for the required purpose, and so maintains a balanced demand for the different grades which are inevitably produced.

"Waste not, want not" is an admirable maxim which appeals to self interest. Our present appeal, however, must be to unselfishness—we must waste not, that others may not want.

Some Facts About Diabetes

MOST of us are familiar with the word diabetes. Briefly it is a disease which prevents the body making proper use of sugar, and it afflicts many people. Certain cells in our bodies, in the pancreas gland, make a substance called insulin. This insulin passes into the blood stream and makes it possible for the body to store sugar, and when the call comes for energy it helps to convert this sugar into muscle energy.

If this agent insulin wasn't on the job, the sugar would simply pile up in our blood instead of being stored or burnt as energy. The kidneys would be asked to try to excrete the excess of sugar in this condition. More water would be wanted to enable the excess sugar to stream out through the kidneys. The sufferer would become terribly thirsty, and hungry almost all the time, because that sugar from the carbohydrates that were consumed would not be turning into calories of energy. Instead, it would be unused and wasted. In effect, he would be eating a great deal more than usual and losing weight all the time. That, in short, is diabetes.

Predisposing Factors

Now what is it that predisposes some people to suffer from this disease? Heredity has something to do with it. It does seem to run in some families. Hence, any family in which the father or mother is diabetic will need to recognise this fact and guard against overeating and overweight, and have a medical examination from time to time.

The disease is more prevalent among those between the ages of 40 and 60, and commoner in those in that period of life who eat too much carbohydrate and sugar foods, and who are overweight.

Diabetes may come on suddenly, with a great thirst, though usually it starts gradually, with tiredness, skin irritation, and a state of no energy for anything. This weakness, coupled with a large appetite and a thirst that can't be satisfied, and frequency of urination, drives the sufferer to the doctor. The diagnosis is easily made by testing the urine for sugar. In less severe cases the disease may be present for a long time and remain unsuspected, if there's no medical check-up and no testing of the urine for normality.

Twenty years ago a diagnosis of diabetes condemned the patient to a life of drastic dieting, with no promise of survival of more than a few years.

New Hope

In 1921 the discovery of insulin gave new hope to diabetics. It was a discovery that gave a wonderfully-increased life span to sufferers and has enabled them to lead almost normal lives again. Nowadays great attention is still paid to diet, but insulin has made the task easier. A diabetic is able to control his disease by proper diet, the use of insulin, and exercise. And, carrying out this control intelligently, he has a good chance of living as long with diabetes as he might without it. Science extracts the insulin, which the patient's body can't manufacture, from the pancreas of certain animals, and it is given to him in the form of an injection. The patient can once again use the sugar and carbohydrate in his food, and may even, in some cases, learn to do without the added insulin after a while.

Contributed by
The Department of Health

While we don't know how some people develop diabetes, we do know it hits middle-aged overweight folk more than others, and also those with an hereditary tendency.

Annual medical examinations with urine test should be made a rule in diabetic families. Middle-aged overweights should eat less sugar, starch, and fat, and exercise more, and have an occasional medical overhaul.

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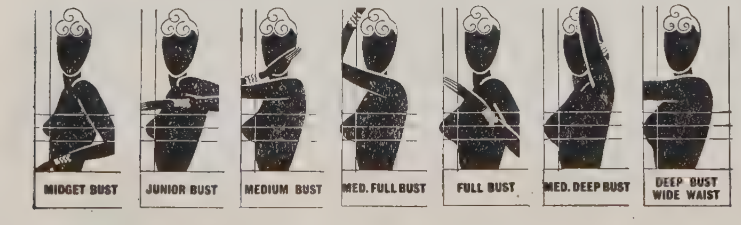
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MEDIUM BUST
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FULL BUST
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DEEP BUST WIDE WAIST

Berlei-bra

"The Month I Like Best"

AUGUST, the time of singing birds and spring flowers, when spring wakes the earth to new beauty, is the month most beloved by "Good Neighbours." Other months, too, have their share of admirers, especially October, December, and March.

First prize to "Isabel Emm," Tauranga, for her distinctive contribution, "Kumara Moon." Second prize to "Bee," Timaru, and "Faraway," Gisborne; and "Alison Grey," Tauranga, highly commended.

First Prize

KUMARA MOON

WHEN the tenth moon is full and bright it is time for the kumara planting, and those are the days for which I long as I pick lemons in the citrus groves of the pakeha rangatira.

The wattle trees in the pa are showing a tinge of the palest yellow, so that I know Uncle Kepa will be getting out his plough to clear his land of rubbish and last year's stalks.

Then one day soon he will laugh to himself, and harness old Moko, his horse.

Together they will lend themselves to the Maori neighbours, ploughing up the rough earth, turning the hardness to softness, sweetening the ground for the straight furrows that will hold next year's crop of smooth pink kumaras. Bella, and all my friends, will be taking the best of what are in the pits, putting them in their new shallow beds of sifted soil where soon they will be throwing up small tender green shoots.

Little pale shoots waiting for the tenth moon. Like me, waiting also for that moon and . . . . Tu . . . .

All those who will not lose their jobs on the dairy farms and citrus groves will help with the planting. I think of how all through the sunshine we will sow the even rows of roots pulled gently from the old kumaras.

Carrying our bundles of shoots, we move down the furrows, some making the holes, some planting, some pressing them firm, singing, laughing, but always working. All together working. Soon the patch at Bella's place is smooth and the green lines clear in the bright light. Bella brings out food from her whare, and we talk and rest in the shade after the labours, eating good things from Bella's oven and from the store, too; so we are glad.

Huia plants her small ground alone. She must show Toni how clever she has been when he returns from the fighting overseas, how she has made his land flourish for his children. In the heat her small dress clings, showing much of her round damp body.

The men joke her for this, but Huia does not unbend her back, nor do her hands cease planting, pressing. She raises crinkled laughing friends' eyes against the sun, but says no words.

At sunset we go home, but after that maybe we go to Bella's or Maggi's, and make fun. Tu . . . Tu makes music on his Spanish guitar. Lehi brings his ukelele, while Bernardo plays on his long blue comb. We sing and sometimes we dance on the marae of our pa.

If the planting round the whares is all done and only one or two days remain of the working week, we do not then go back to our jobs. The river shines sparkling like silver where we swim and fish.

Peta mimics, and makes fun copying what our pakehas will say when we return to our works, and shows how we will smile and lower our eyes, saying no words, which is a good way to speak when the bosses swear and rage. But my pakeha say it is no use to have the crossness. He put his shoulders up and down, telling poetry about "a heathen who smiles and a Christian who riles and it weareth the Christian down."

But me, I do not understand such meanings. One time Uncle Kepa dig a new kumara pit and Peta lie down in the hole, and fold his hands under his chin, putting out his long red tongue, rolling his big eyes to show white. The girls kneel round the pit, covering their eyes, but peeping, making keening on a high note as for a man in death. Uncle Kepa he turn to see what Peta is up to now, and shovels a lot of earth on to him so that he jump out quick. We all run away, falling over with laughing.

Huia say the kumara planting is a good custom. She say she feels good thinking of Maoris all over this country stooping in the sunlight making our pas fertile for the childrens. All safe and happy together.

When the tenth moon comes again, Huia will wish for us to help her this time for now Toni will come back no more to his home on the hillside. And me, I get lonely picking lemons

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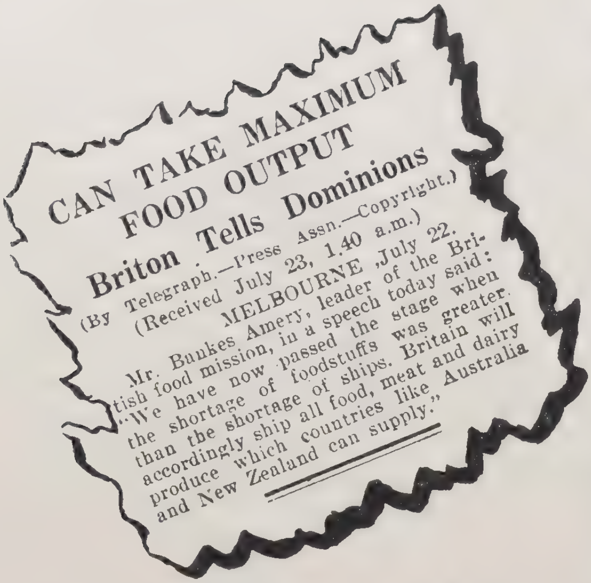

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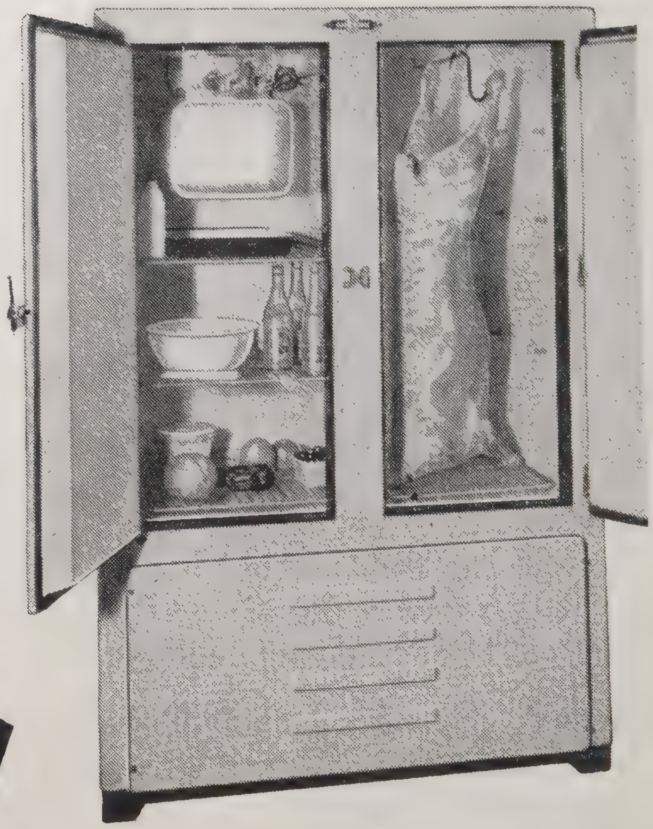
Briton Tells Dominions

(By Telegraph.—Press Assn.—Copyright.)
(Received July 23, 1.40 a.m.)

MELBOURNE, July 22.

Mr. Bunkes Amery, leader of the British food mission, in a speech today said: "We have now passed the stage when the shortage of foodstuffs was greater than the shortage of ships. Britain will accordingly ship all food, meat and dairy produce which countries like Australia and New Zealand can supply."



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J.A.

in the citrus groves of the pakeha rangatira with only piwhakawhaka the fantail for company . . . darting and wheeling . . . catching his dinner all the hot day from the air. All the year we do the pakeha's ways except when there is a dead body for a tangi. Or maybe sometimes there is a hui.

But the tenth moon is best, for it brings the kumara planting and Tu . . . . with his music . . . .

—**"Isabel Emm," Tauranga.**

Second Prize

BETTER than September's urgent thrill, more than the lovely, mellow peace of March, I like December. Not only because the light mornings and long evenings make work easier and outdoor activities a pleasure, but for the memories and anniversaries December brings.

First of all, Christmases—many of them now. Frosty, short days of my English childhood when we returned, parcel-laden, to blazing fires; when every room held a secret, and the age-old carols rang out on the cold air; when we emptied the full, knobbly stockings on our beds; when we glimpsed the glittering, resin-scented tree in the drawing-room. Later on we trudged to early church in the dark and heard the bells ringing out to the frosty sky: "O come, all ye faithful, joyful and triumphant." Christmas in New Zealand is warm and light, but still brings joy and a glad message to my own children, who in their turn sing the same carols and find their hidden treasures.

Then it was on Christmas Eve, our midsummer night, when magic is abroad, that romance came to me—it is a sweet memory. And the following year, in December, too, the day arrived that most women remember best; a flutter of lace and veil, the scent of lilies, solemn words and sweet music, the happy laughter and excitement of a wedding. Each anniversary makes it seem close and real and precious.

Then came a year when I spent wedding anniversary and Christmas in hospital for the best reason in the world and December became a more memorable month than ever. I shall never forget that year, the delphiniums and roses and lavender in the garden, the sweet peas and carnations in the ward, and the warm, wriggling bundle that was our son.

So I look forward to December, to the glory of the flowers and the wealth of the vegetable garden, to a big boy's birthday, to private anniversaries, to bathing and picnics and long days of haymaking, and, crowning festival of all, the birthday of that Babe of long ago: Christmas Day.—**"Bee," Timaru.**

Highly Commended

MY choice is March, because of its reluctance to surrender entirely the good things that have gone before, and for the hope and challenge which it offers to the future.

Christmas, holidays, visitors, and all the events that lift us out of our usual routine can now be seen in their right perspective and become rich memories to brighten drab moments. The children are back at school, adjusted to the change-over of new books and teachers; the summer sewing is finished; the farmer is happy as he watches the completion of the last haystack.

In the garden late roses still bloom and birds chirrup their songs to the summer-like peaceful days. Then gradually, almost imperceptibly at first, the atmosphere changes and one becomes aware of the crisp sharpness of autumn weather; the hills are more clearly defined, and the air contains a bracing quality which it lacked before.

In the orchard crimson apples and plums glow richly in full maturity, blackberries shine forth from unexpected hollows; and in the fields the first mushrooms appear so perfect in shape and colour that it seems a desecration to pick them. The foliage of shrubs and trees gradually changes colour, the leaves are streaked with tints of red and brown which later deepen into flame and yellow, and underfoot lies a gold carpet. These colours suggest strength and character to us and seem to offer a triumphant acknowledgment of having overcome all difficulties; before the last leaf falls we discover the first new bud on the branch, a promise of potential life!

Here and there a blue spiral of smoke rises from a pile of burning leaves. Slowly the days shorten and grow colder, and we look forward to the long evenings beside a glowing fire with a favourite book for company.—**"Alison Grey," Tauranga.**

I LOVE April best because it spells autumn. The clear golden autumn means garden fires, and swirls of sweet-smelling smoke; the storing up of logs for winter fires and the gathering in of apples; drifts of autumn crocuses and mellow days; afternoon walks in a crisp merry breeze, scrunching through heaps of fallen leaves.—**"Snowy," Port Nelson.**

I THINK most of us experience one period in the year when we feel fully attuned with the universe, when we are bubbling with energy and life is a glorious adventure. With me it is when winter and the first rawness of spring are over. In November the keen east winds are routed, the early summer blooms are gladdening our hearts, and Nature's fundamental purpose is being fulfilled. Through the luminous green haze of larch and birch I can see newly-shorn sheep browsing in cool, clean grass paddocks

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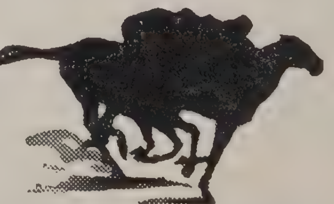

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across which cloud shadows ripple. Hawthorn hedges creamy with scented bloom, slender sentinel poplars, graceful willows, sombre pines, and oaks blend in a symphony of green. I love November—it comes

> "Before the sun has power
> To scorch the world up in his noon-
> tide hour."

—**"Cloudy," Ashburton.**

SPRING and August are synonymous, for it is in August that Mother Nature wakens from her winter sleep. There is beauty everywhere, in the soft morning mists, the shimmering green willows that line the creek banks, in the first bursting buds of the clematis. Young animals are all about the farm—little lambs and wobbly-legged calves, and piglets, and in the kennel a new litter of puppies makes whimpering sounds. All these small creatures have a great appeal for me.—**"Parnteea," Northland.**

HERE in my mountain home where the seasons are so extreme I have grown to look for March. To me March means autumn and cooler, restful days after summer's tiring heat. In these few weeks we look back on the busy season of summer, the long hours of sheep work, the fruit gathering, the thousand and one jobs, all pleasant enough if only it were cooler. Now we have seen that the sheep and cattle are ready for the cold months ahead, that the larder is well stocked. We all need a quiet breathing space at some time of the year. So in lovely, sedate March, when the dull golds and mellow browns of autumn steal down our misty gorges, I think on the words of Wordsworth:—

> "Ne'er saw I, never felt a calm so
> deep,
> The river glideth at his own sweet
> will,
> Dear God! the very houses seem
> asleep,
> And all this mighty heart is lying
> still."

—**"High Country," Tekapo.**

TO YOU WHO PASS BY

YE who pass by and would raise your hand against me, harken ere you harm me. I am the heat of your hearth on the cold winter nights; the friendly shade screening you from the summer sun; and my fruits are refreshing draughts quenching your thirst as you journey on.

I am the beam that holds your house, the board of your table, the bed on which you lie, and the timber that builds your boat. I am the handle of your hoe, the door of your homestead, the wood of your cradle, and the shell of your coffin.

I am the bread of kindness and the flower of beauty. Ye who pass by listen to my prayer: HARM ME NOT.

ONCE I saw a picture of four graces depicting the seasons. Autumn was a fairy clad in autumnal shades; Winter looked rather icy in her cold beauty; Summer, yellow bright, with the dazzle of a midsummer's day, but Spring was a fresh young maiden delicately draped in the loveliest, lightest green, and eternally young.—**"R.E.E.," Auckland.**

THE orchard is a place of fairylike beauty in August with the delicate pink and white of peach and apple blossom etched against a soft spring sky, and the pearly whiteness of plum blossom falling like snow at every vagrant breeze. And over all sounds the drowsy murmur of the bees as they go from flower to flower, gathering their sweet harvest.—**"Hope."**

JUNE is the only month that I can have a little time to call my own. Besides catching up on the darning, mending, and letter writing, I have an opportunity to study a few garden books so that when spring arrives I know exactly what to put in and where to plant it.—**"Honey Bee," South Canterbury.**

Competitions

OCTOBER

The competition for October is "In What Way Would You Improve Rural Living?" Closing date, October 15.

NOVEMBER

The other day a small boy confided to me what he intended asking Santa Claus to bring him this December. This set me to thinking of some of the Yuletide gifts I had received in past years. My earliest recollection is of waking up and finding a doll almost as big as myself at the foot of the bed. Then there was the Christmas I became the proud owner of a tennis racquet; nor have I forgotten the thrill of opening a small tissue-wrapped package and discovering my first wrist-watch; but perhaps the most exciting present of all was bestowed on me after I reached adult years—boat tickets for a trip abroad.

Out of the many Christmas presents that have been yours, I want you to choose the four which have given you the greatest joy. There will be a prize of 10/- for the most interesting selection and the second prize will be 5/-.

"CHRISTMAS PRESENTS."

November 15 is the last day for receiving entries.

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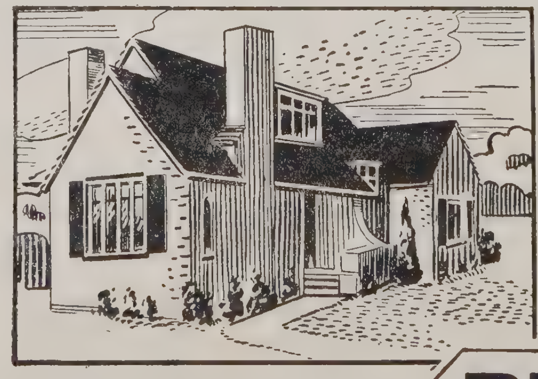

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Be straight
For there are others around
Who, crowded, cannot reach what they aspire.

Be green
For he is always young
Who holds eternal parley with the Spring.

Be glad
So that all lovely things
Within your joyous boughs may rest and sing.

Be strong
For there are winds that blow
And long to tear away your plumed crest.

Stand fast
And you will some day hold
The wisdom of the ages in your breast.

Be true
That men will upward look
Unto that spire which, rising from the sod,

Has grown
When it is tall with years
Into an anthem on the hills of God.

◆

The groves were God's first temples.—
William Bryant.

An Eastern Poem

Twilight upon my path
And for mine inn to-night
The shadow of a tree
And for mine host a flower.

Tane Mahuta

WHERE the dark branches drop downward so slimly
Through the mist dimly
Tane Mahuta goes o'er the hilltop.

Red leaves are shaken by passing fingers
And in the river-air swift feet awaken
Leaf scent that lingers.
Fern flower and tree bower shade not his resting-place,
Nor shall the passer-by see his brown forest face
Turned to the chill blue sky.

'Tis Tane Mahuta! Atua! The dim!
Magic his ghostly hands—
Whisper the name of him low in the woodlands.

For he invisibly turns as he passes
Summer to sorrow down yellow grasses
And brings rain tomorrow.

—Mary R. Gullery.

There are the twisted hawthorn trees
Thickset with buds as clear and pale
As golden water or green hale—
As if a storm of rain had stood
Enchanted in the thorny wood,
And hearing faery voices call,
Hung poised, forgetting how to fall.

—Mary Webb.

Ideal Holiday

MY ideal holiday was one which my parents, three brothers, and myself spent a year or two before the war, touring the South Island by car. We reached Lyttelton on the morning of the third day of our trip from Auckland. It was a gloriously clear day and from Christchurch we set off, the following three weeks being simply delightful. The car sped over the plains and later across the Mackenzie Country, past the memorial to James Mackenzie, and on to the foothills of the Alps. The lakes were beautiful. I vividly remember the quaint little church standing back a bit on a small rise above the shores of Lake Tekapo. The large plate-glass window beyond the altar overlooked the glimmering silver mirror of the lake, which reflected part of the ragged, endless line of challenging, towering peaks rising above the glittering fields of ice and snow. We skirted the shores of the lake for an hour or two, and later reached the Hermitage, where we camped in the shadow of Mount Cook. The days were quite warm but the nights cool and fresh. The solemn stillness was disturbed occasionally by the distant thunder of an avalanche. The wind moaned and whistled as it swept down the bush-clad valley, the tents flapped, and sometimes there would be the screech of a hawk or kea. Christmas Day we spent tramping over the hills and hollows of the Tasman Glacier, just below the treacherous Hochstetter icefall, which is strikingly picturesque. The wonderful scenery of this district is very similar to that of Switzerland with its towering, majestic mountains, its extensive forests, and lovely green hills sloping down to beautifully clear, still lakes.

We passed on to Queenstown, where we spent whole days swimming, boating, and picnicking by the lake. I remember the lovely colours of the surrounding mountains, the cool wind on the hillside track, the cottage in the flowered glen, the bleating of a sheep, and the lowing of the roaming cattle. Another day was spent in the Eglinton Valley—the glistening silver spray of a waterfall, the frequent squalls and the densely-clad hills were sights never to be forgotten.—**"Helen," Auckland.**

The rugged beauty of South Island lakeland is epitomised in this church on the shores of Lake Tekapo. All appointments such as altar, belfry, baptismal font, are dedicated to the memory of pioneer identities.

Mary's at - Home -

THANK you, "Molly," for sharing your biscuit recipes with us. I am longing to try them. I wonder how many "Good Neighbours" have read that booklet of verse, "This, My Son," by Joan Kinmont. It tells of an only son, his babyhood, his growing up and entering the Air Force, and his death in action. For his mother the light goes out until she discovers that he is not far away and has only passed from sight—

> "Dear one, at last I know
> That you are near
> And there is no more pain.
> Nor shall I grieve
> For this, my son, was dead
> And is alive again."

—**"Peggy."**

I WAS pleased to see an old friend of mine in the July issue—George MacDonald's "Song of Degrees." Would the sender, "Caradon," mind if I say that she omitted the last four lines—these form the perfect climax—

> "When to love is all thy wit,
> Christ doth at thy table sit—
> When God's will is thy heart's pole,
> Then is Christ thy very soul."

If she does not know these lines, perhaps she would like to have them.—**"Sue."**

I ALWAYS enjoy reading about the doings and sayings of children. I was making up the spare room bed the other day when my neighbour's kiddies came in and asked who was coming. I explained that I was expecting our Grandma, and added proudly that she had thirteen children. The small boy gazed at the one small bed and enquired: "Is she going to bring them all with her?" I hastily said "No, they are all grown up now." I also remarked that she was a very old lady. What a shock I got when the little girl said gravely, "Is she as old as you?"—**"M.N."**

WE now have a wee son. How wonderful it is to watch his mind awakening and his body developing, and what a responsibility is ours to see that he is brought up to put first things first and live a useful life. —**"Pet."**

I DON'T think there is ever a slack time on the farm, for when the busy outdoor season is over so much work has accumulated indoors that one is snowed under with jobs waiting to be done. Still, a busy life is a happy one, and there is much for which to be thankful. When I feel weary at the end of a strenuous day I think of the many who would give anything to be able to work. It is good to know that our dear ones in the homeland are now free from the terror of bombs. May victory in the Pacific soon be a reality, and then it will be the task of us all to see that peace is an established fact. It will not be an easy task and will need vision, faith, great understanding, and forbearance.—**"Effie."**

WHAT a thrill it was to receive a postal note for the snap of my three-year-old Brian. It was a great joy to see his smiling face next to "Biddi-Jan's" little Peter. What would we do without photos! I have several albums full—they help one to relive past pleasures and recall forgotten incidents. My old camera has proved a faithful friend. Years ago my brothers and I set out to clear the rabbits off our father's farm. By trapping and poisoning we often got as many as two hundred a day. We divided them between us and each skinned our own share, and with the proceeds from the sale of my skins I bought a camera. I still use it to this day and would not part with it for anything. The things we work hard to get mean most to us, don't they?—**"Fruffy."**

I ALWAYS enjoy your pages, as do thousands of other country women. There is a freshness and wholesomeness about them, which, I think, reflects the quality of country life, part of the goodness of the soil itself, always found in those who live close to it.—**"J.W."**

WHITE GUMS

There is a harmony of straight, white gums
On the arch of a night sky deeply black and serene,
A cool slow breeze astir in a pattern of leaves
With a few fine stars beating gold fire between.
Here there is peace in the rustle of paddock grasses,
And the stir of shadows that waken and move at their sigh
Over the pavements, worn with the passing of hundreds,
Now quiet, grey and deserted under the sky.

—Rita O'Brien.

I KEEP a scrap-book of interesting items from the books and papers I read. Here is one extract: "It is a great source of happiness to be associated with people who are trying, however imperfectly, to make a better world." Another one is called "Laugh and Be Merry."

> "Laugh and be merry: remember, better the world with a song,
> Better the world with a blow in the teeth of a wrong.
> Laugh, for time is brief, a thread the length of a span.
> Laugh, and be proud to belong to the old proud pageant of man."

—**"I.R."**

I'VE been writing my competition essay and thinking of all the birds we saw on Stewart Island. I thoroughly enjoyed "Dame Nature's Minstrels"—birds are so fascinating. Do you ever long to set free birds cooped up in cages which are much too small?

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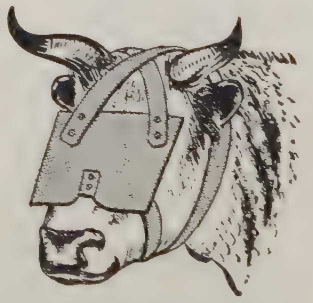

At present we have no bird pets and I have made a vow that we won't have any until there is a big roomy aviary built round a growing tree or some shrubs.—**"Cloudy."**

VERY wet days are with us at present, and a cold snap of hail was not pleasant today, although son was intrigued to see the fields so white. I hope it is all over and done with before the new lambs arrive.

How wise of "Rayna" just to sit and rest at evening. So many folk nowadays have lost the art of relaxation, and it amazes me the number of people I meet who fidget and can't keep still. Even winter in its resting bids us pause a while. In my recent garden reading I came across the following:

> "I, singularly moved
> To love the lovely that are not beloved,
> Of all the seasons most
> Love Winter."

I, too, love winter for its cosy fires and cheery companionship—but won't spring be grand!—**"Roundabout."**

NEVILLE and Michael undertook to stir some cream for their mother, and when the buttermilk had come mother said, "Now put the butter in the colander and turn the tap on it to wash it."

All was quiet. She went to see what had happened and found two serious little boys. Neville looked up at his mother: "Well, Michael said it would come a lot cleaner if you washed it in hot water, so I did, and it's all gone!" Alas! for the precious butter—it had gone down the drain.—**"E.M.H."**

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B

MAY I join your circle? We used to have a farm, but had to sell up when my husband joined the forces. He did not return. We moved to town, but have a glorious view and can see right over to where we used to live. I can see both town and country from my windows, and often see a rainbow stretch from town to country. To me it is a promise of the unity that must come one day. My sons are both taking the agricultural course at school, so I, too, read the farming magazines. What I really miss is the sound of the sheep. Dogs we have in plenty, birds too, and flowers and scenery. But I miss the indescribable something about country life, that bond of belonging to a great band of homemakers. Perhaps I can recapture it again by joining your circle.—**"Tip Cat."**

HOME CORRESPONDENT

71 Stockbridge Road,
Winchester, Hants.,
England.
May 12, 1945.

Dear Mary,

Do you think you can help me? I would love to have a New Zealand woman correspondent, and thought maybe you could put me in touch with somebody interested.

Incidentally, today is my 43rd birthday. I am interested in gardening, home-making, the cinema, and life in general.

A friend's colleague gave me the "Journal of Agriculture" for my son, an agricultural student, now serving in the Royal Navy. I found lots in the "Journal" to interest me; the recipes for puddings (Nov. 15, 1944) were very helpful, although the walnuts and coconut mentioned certainly made my mouth water. Walnuts are a rarity in England now-a-days, and of course coconuts are not now imported.

Well, Mary, I expect you are a very busy person, so will bring my appeal to a close; thanking you in anticipation of your help.

Yours sincerely,
(Sgd.) Iris M. Jones.

"Good Neighbours" who desire a British penfriend should find Mrs. Jones an interesting correspondent.—Mary.

TO my mind one of the most picturesque places in the North Island is Whangaroa Harbour, which lies amid outcrops of volcanic rock. Some of these rocks look like huge medieval castles, and the "mushroom" rocks are almost worn through by tidal action. The forested slopes of the Herekino Gorge form another beautiful scene, with tree ferns towering above the lesser growth of the forest, and groves of graceful nikau palms flourishing in many places.—**"Baffle."**

SOME years ago I had a trip to Fiji. We had a wonderful time in Suva, visiting native villages, also markets where silks, trinkets, long ropes of tobacco, fruit, etc., were sold by unsmiling Indians who were such a contrast to the cheery Fijians. A native feast was prepared for us and we had cooked fowls, taro, bananas, and green coconuts which the natives opened with the twist of a knife. The

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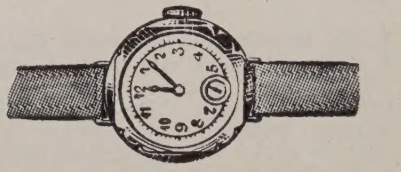

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coconuts were full of delicious milk, a splendid thirst-quencher. Before the feast we were presented with flower leis, and the ceremonial kava was prepared. Everyone had to take a sip from a half coconut shell.

The trip I liked best was one to the coral reef. We went out in boats and were given glass-bottomed tins to put in the water—thus we could see the bright-coloured fish moving among the coral caves.—**"Linda."**

THE bush beneath the light of the moon is a haunting, bewitching place, almost uncanny with its grey shadows, dark, swaying trees, and the silver moonbeams dancing among the leaves. Some of the taller trees are like long, grotesque fingers pointing to the Southern Cross above.—**"Valancy."**

FOR a long time now I have been reading and enjoying other people's paragraphs and essays in your pages. I think you keep your topics very bright and varied, and I am always pleased to find the "Journal" in the mail. For a pen-name I have chosen "Early Dawn," which is the English version of "Te Moata," the name of our farm.—**"Early Dawn."**

IN the recent book competition there was an entry by "S.J.M.," Hicks Bay, which to me was outstanding. Her selection of books appealed to me—I have read and enjoyed practically all of them, and have copies of most of them. It is rare these days to find someone whose tastes in literature run parallel to one's own.—**"E.L."**

I AM pleased that the cover design of the "Journal" has been changed—I had been thinking it was about time that those two able-bodied farmers holding up that fence got back to work! The new cover design is excellent and should inspire us all to try and produce more than ever.—**"Glendine."**

I'M still not used to the "personal" touch that exists among New Zealanders. Maybe it did exist in the country districts at home, but I came from a large town (130,000 population) and there was not the same spirit prevailing. I much prefer the friendliness here, and your circle does make one feel that one is not buried in the country and forgotten.

My spare time is mostly occupied with spinning and letter-writing, for I carry on a large correspondence with friends and relations in England. I was delighted with the comprehensive article on spinning and dyeing in a recent issue, and hope to try some natural dyes soon. The list of mordants was a great help. I am longing to get a loom, but must become really experienced at spinning first.—**"Homespun."**

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SUBSCRIPTION RATES.

The *Journal* is issued monthly. The subscription within New Zealand, which is payable in advance and includes postage, is 2s. 6d. a year. The overseas subscription is 5s. Subscriptions should be forwarded or paid direct to any office of the Department of Agriculture in the Dominion. Single copies, price 6d., are available from the Department of Agriculture, Box 3004, Wellington.

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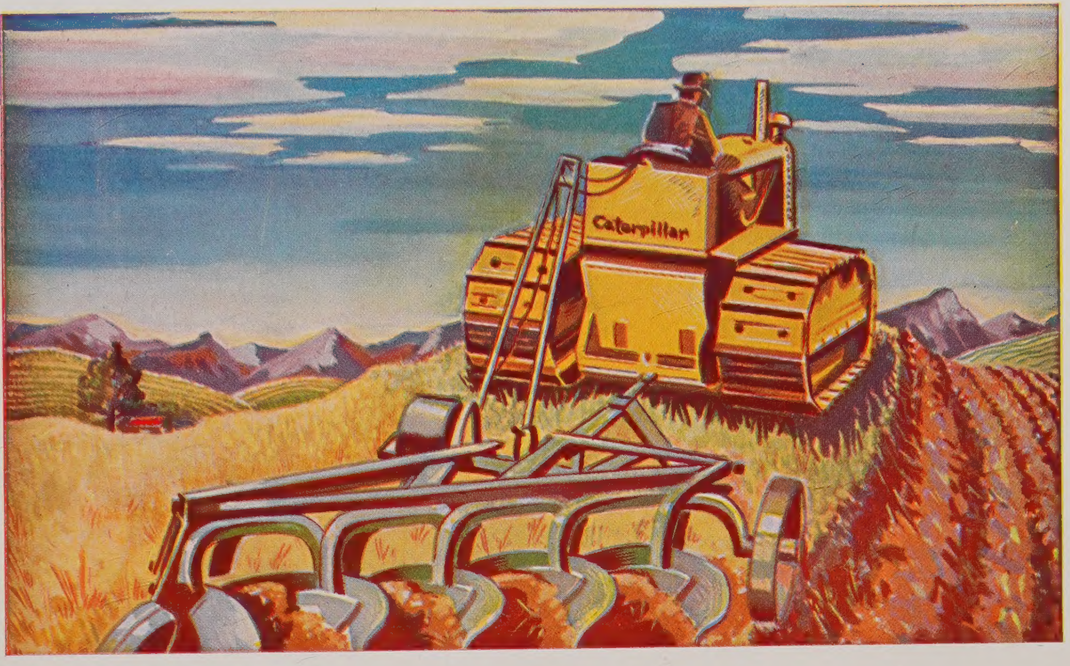
I DO think the "chats" by readers give us a human interest in our fellow-beings. We are too prone to take our neighbours for granted, when sometimes taking a little more interest in their daily life would bring to light a common interest.—**"Spring."**

MAY I join your circle? I try to be a good neighbour, though I can't go visiting with three small children, and the milking, etc., to be done. Here we are "in the bush." It is half a mile to the nearest house and there is no electricity, so I have to use candles and kerosene lamps. We have had no wireless till recently, so life has been very quiet.—**"Mary Anne."**

MAY I join your happy circle? I have been reading your pages for some time and have gained some useful ideas from them. The articles on the drying and preserving of fruit and vegetables were most interesting, and I hope to make more use of the drying process in the future.—**"Scotty."**

Printed by Blundell Bros., Ltd. (The Evening Post), Wellington—17320.



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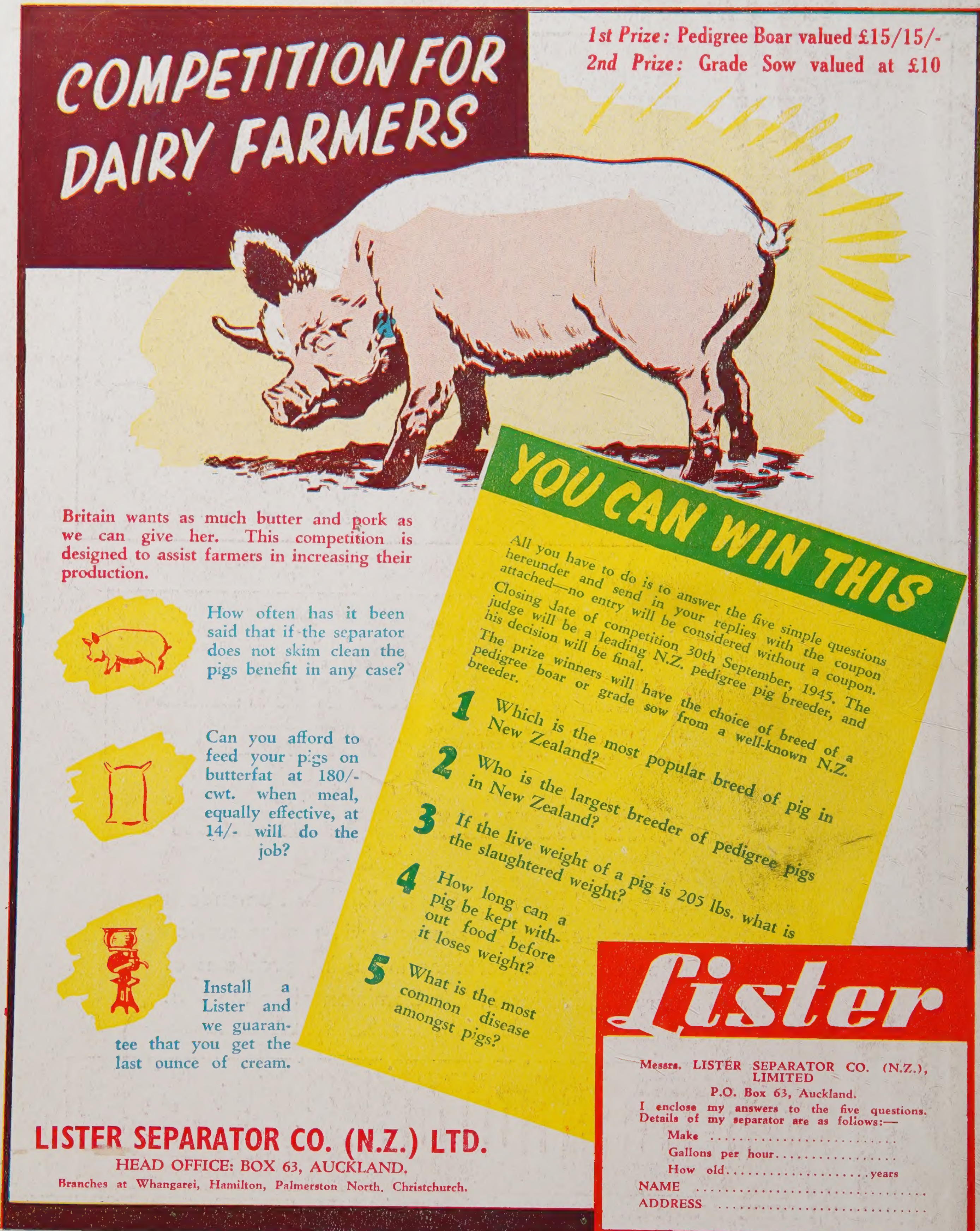

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